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January, 1959

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ARMED FORCES management

PUBLISHED FOR THE ARMY, NAVY, AIR FORCE, COAST GUARD AND MARINE CORPS



Trends in Military Buying - - see complete contents . . . p. 3

Why an A-Plane Crash Program Won't Work . . . p. 29

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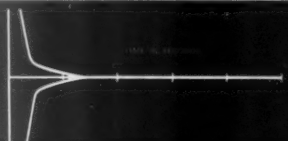
engine power

BY CATERPILLAR

CATERPILLAR POWER FIRES SNARK...FIRST U. S. INTERCONTINENTAL MISSILE

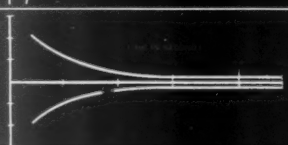


VOLTAGE

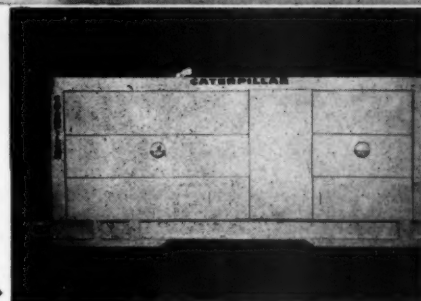


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ARMED FORCES management

PUBLISHED FOR THE ARMY, NAVY, AIR FORCE, COAST GUARD AND MARINE CORPS

JANUARY, 1959

Volume 5—No. 4

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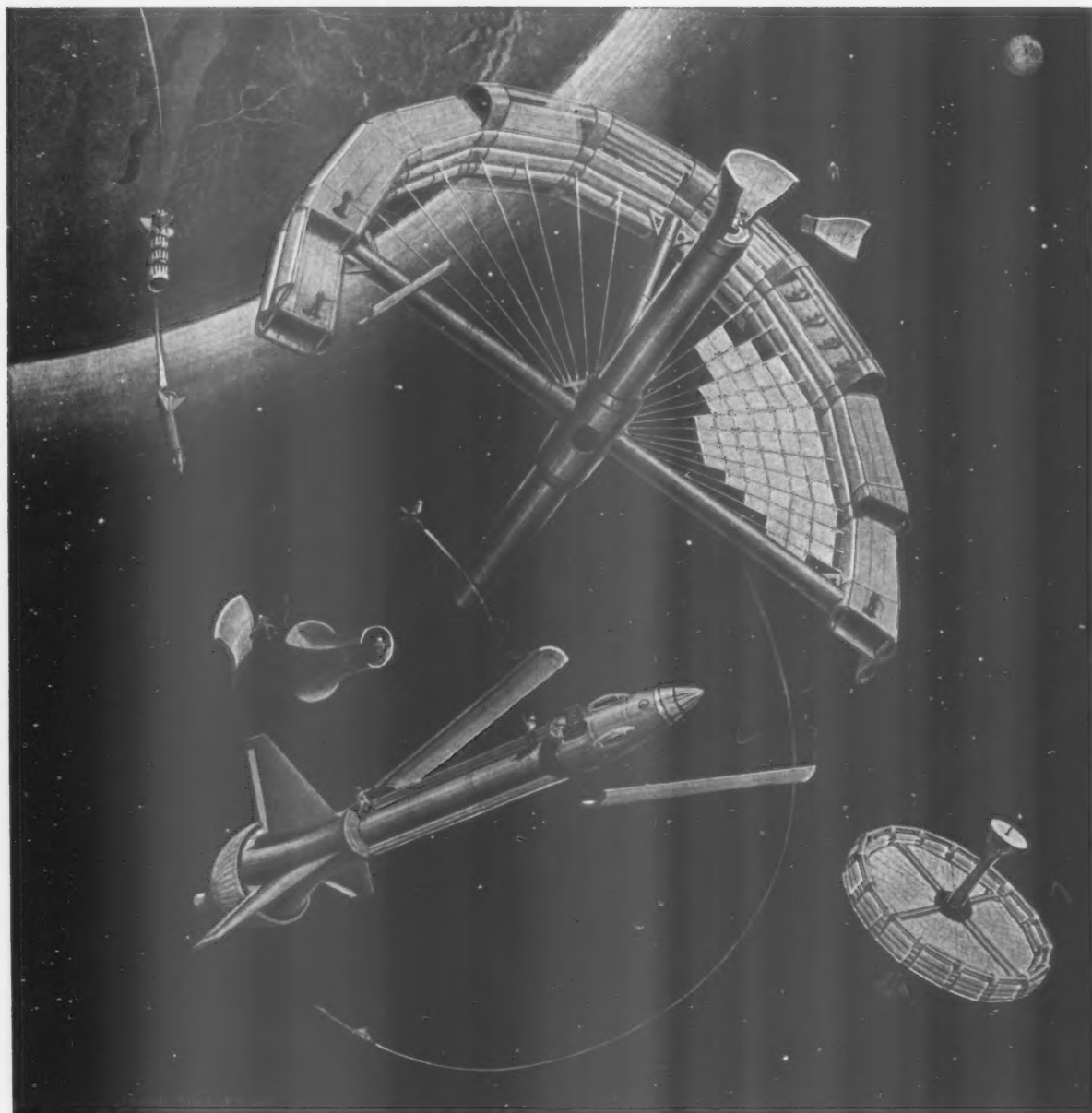
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Published monthly by Professional Services Publishing Company, a subsidiary of American Aviation Publications, Inc., Washington, D.C. Printed at The Telegraph Press, Harrisburg, Pa. Accepted as controlled circulation publication at Harrisburg, Pa. and Washington, D.C. Copyright 1959 by the Professional Services Publishing Company. Title registered U.S. Pat. Off. Four weeks' notice before next publication date required for change of address. Subscription Price: \$10.00 a year in U.S. and Canada, \$15.00 overseas.



STEPS IN THE RACE TO OUTER SPACE

Assembling a station in space

This imaginative but technically accurate illustration shows a permanent satellite (center) being constructed in orbit around the earth. It generates its own heat and electricity from solar rays. Basic vegetation (such as algae) for oxygen as well as protein-rich foods are grown in hydroponic tubes in upper level "greenhouses."

New vistas in astronomy will be opened up by such a space station, because of perfect conditions for photography and spectroscopy. It will also provide unique conditions for ad-

vanced research in physics, electronics, weather prediction, etc. Three such stations, properly placed, could blanket the entire world with nearly perfect TV transmission.

Atomic rocket vehicles with prefabricated skin layers (lower center) provide building materials for the station, then return (bottom) to earth. Similar craft will service an established station (lower right), docking by electromagnetic pull in lower section of station's axis.

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Editorial and Advertising Offices: 1001 Vermont Ave., N.W., Washington 5, D.C. Phone: STerling 3-5400.

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EDITORIAL

Hysteria in High Places

BACK in April, 1958, ARMED FORCES MANAGEMENT noted apprehensively that the stage was being set, in the field of nuclear bomber development, for a repeat of the Sputnik hysteria.

It appears now, unfortunately, that our crystal ball was accurate. It is unfortunate because these "scare" reactions to possible or presumed Soviet "successes" tend to sell the free world on a new philosophy—in essence, "Do not measure your achievements by how well you fulfill your own programs; but rather, run fast in all directions, look back over your shoulder at what your opponent is doing, and then do it first."

While proponents may praise this philosophy as a head-on charge at the Soviet challenge, it is, in reality, a defeatist doctrine. It presumes:

1—that we cannot evaluate for ourselves the proper criteria of progress but must rely on communist clues;

2—that the military cannot plan and execute new weapon development programs sound enough to stand up under the pressures of competition.

In the final analysis, U.S. success or failure will be a direct result of how well we plan and manage our own resources. Too many people in authority, however, do not seem to have enough faith in the rest of the team, enough understanding, to believe this. Fear is gnawing away at progress. Too many people, who should be working hard on projects, are in Washington answering to hysteria in high places.

Item: Congress is still grilling Defense on why it has not spent the extra money voted it in late 1958; even though Defense said it couldn't use the money now and no less an authority than Dr. Wernher von Braun said we are, at the moment, spending money "intelligently" about as fast as we can.

Item: The Air Force in particular, and Defense in general, is being scorched for not crash programming the nuclear bomber effort, based on little more than an amateur reaction to some nonsense about "some peculiar looking objects over Moscow." The reason, which they can't seem to get anyone but the President to buy: "Let's not put a nuclear engine in an aircraft now just for the sake of getting it in the air. After all, Defense Department's primary concern is still national defense, isn't it?"

Item: Two years ago, inter-service rivalry was blamed for our lag in the missile program—even though Pentagon top policy people were crediting it, under their controlled management of its existence, with cutting as much as two years off development time schedules of some weapons; and scientists and technicians in the field were quite surprised to learn that they hated each other.

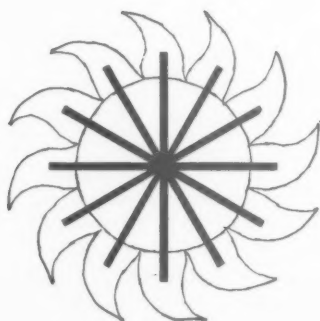
Item: Barely three months later, Defense was crucified for not launching a satellite first even though its scientists asserted repeatedly that solving the problems attendant to developing an operational IRBM would give us knowledge enough to make satellite launching relatively easy—and wasn't the IRBM more important than taking time out for "nice technical tricks?"

Item: One of the marks of hysterical reaction is that it can fluctuate from pessimism to optimism on the slimmest of excuses. While the free world hailed efforts here to reach the moon, military operations and intelligence people wondered in private just how this was supposed to make us stronger now than our potential enemies.

Under pressures from the men who control the purse strings, Defense is being forced to dissipate its allotted resources on many projects which, in the present time frame, are not worth that much effort. It is time the men who designed and are running our security show explained to America's worst enemy, itself, that there is a more important question than just being first. "We may be first—but in what?" It is time the "hysterians" relaxed and had a smoke. It is time we give ourselves a little credit and quit running scared.

Bill Borklund

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In My Opinion

Army Organization

Articles such as the one you attached (How to Simplify Army Organization, Nov. AFM, p. 21) are always of interest in connection with our continuing study of Army Organization.

The Army is constantly searching for better organizational and operational concepts and the materiel to support them. Basic problems such as integration of the combat arms and the functionalization of the technical and administrative services are reviewed periodically, and those concepts which appear to have the most merit have been and are being refined by war gaming and field testing. The Army recognizes that change is a continuing process. We are striving to keep pace with the rapid development or modern technology, bearing always in mind, however, that too rapid alteration of our system would adversely affect our posture of readiness.

General L. L. Lemnitzer

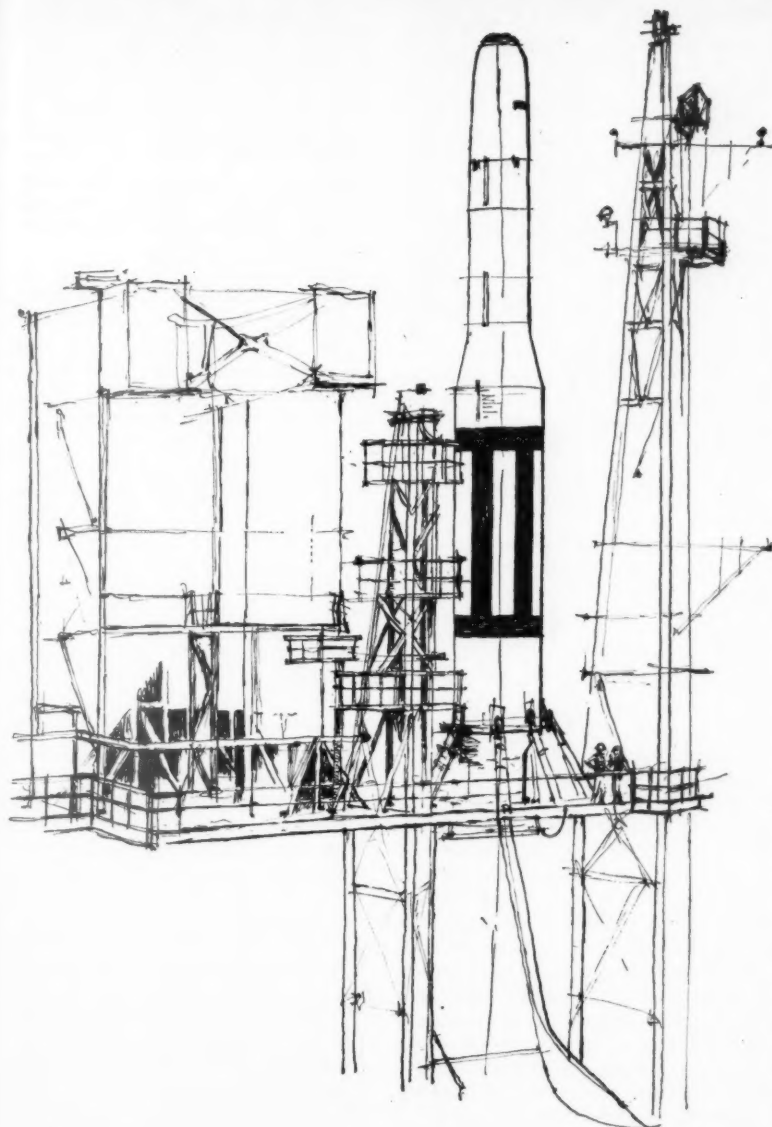
Vice Chief of Staff
U.S. Army

Why ADSID?

The editorial material on ADSID . . . was read with interest. It is my opinion that this newly formed division is a perfect example of Parkinson's law. It appears to me that the policy here is one of hiring a third party to interpret the words between two knuckleheads. Candidly, I see no reason for huge groups of "super management consultants." I believe that improving decisions and decision making is a staff responsibility that can never be delegated to "non-profit" industry or otherwise "disinterested" parties.

The office of the Development Coordinator within ONR consists of a small group (approximately 20) that is achieving the success your article indicates ADSID and Mitre hope to obtain. Our efforts are directed not at analyzing words so much as getting people in the same business to sit down and talk to each other. A private firm such as Uniword can discover the meaning of words and publish new dictionaries but this does not mean people in the same business will necessarily sit down together to analyze their mutual problems. To put it more simply, in my opinion you can build whatever organizations you like but this does not by itself insure success. Perhaps a very prime example of this would be the Air Defense Systems Management Office.

At any rate, since you have been



kind enough to present me with one viewpoint, you might be interested in the "other side of the fence."

C. C. Weissman

Office of Naval Research
Washington 25, D.C.

ADSID, again

(Reprints being prepared) of the article by Fred Hamlin, entitled "ADSID—New Single Manager for Air Defense?," appearing in the October issue. The purpose of reprint is for orientation of Air Force units with some distribution being made to industrial organizations working with ADSID.

Cmdr. Air Defense Systems Integration Div.

L. G. Hanscom Field,
Bedford, Mass.

Wrong Choice

I noticed in leafing through your September issue a table comparing major computer systems. Unfortunately, the only listing for the National Cash Register Company was one for a small scientific-type computer which has not been marketed for more than two years.

So that your file on developments in this area by the National Cash Register Company will be brought up to date, we are enclosing descriptive material concerning the NCR 304 System, the first deliveries of which are scheduled for next year.

In checking with our electronic data processing people, I learned that this Company's chief contact with the Armed Forces is with the Ballistics Research Laboratories of the Aberdeen Proving Ground. I was told that this organization prepares an annual study on current computer developments and that the 304 System was fully described in their latest report, Department of the Army Project No. 5B0306002. I am passing this information along in the hope that it may be of help to you in the preparation of future articles of this type.

C. V. Traux

Public Relations

The National Cash Register Company

We did, in fact, use the Report No. 5B0306002 in compiling our table. We recognized at the time that the 304 system was in there. However, space limitations precluded our listing other than a representative sample of all the systems and computers found in that extremely thick (460-page) manual. NCR and your systems are notable members of the field, and we did want to include a listing from you. Our mistake was in picking the wrong one—Ed.

Different Viewpoint

Your September 1958 issue, devoted almost exclusively to EDP in the services, was of particular interest to me. It dealt at length with EDP as viewed from the "top" of management. The picture is quite changed when viewed from my personal vantage point, somewhere at the bottom. In moving from so-called "conventional" type punched card accounting to EDP, we are rapidly becoming mired in the same factors which in the past prevented a complete shift from manual to punched-card systems. Personal experience in the machine records operations of both the Comptroller and Supply departments of the Navy have convinced me that we have never had better than a clerical-machine system.

The difficulties caused by an incomplete move to punched card procedures are now becoming ever more severe. If it required 10 clerks to keep up with the clerical-machine system, it will require 100 clerks to maintain a clerical-EDP system. The speed with which an EDPS functions is almost always given as "x number of calculations per second," when in reality it would depend upon how much of the total procedure had been effectively assigned to the machine, and how much retained by clerical forces. The relative speed of the latest EDP equipment means little if the data input and the results of almost instantaneous calculation must still move from clerical section to clerical section for audit, review, edit, coding, de-coding, etc.

Navy started, of course, with a manual record keeping system. With the advent of punched card processing systems, we moved into what promised to be a mechanical saviour in the data processing and reduction areas. What happened instead was that manual system was lifted in all its bulk and stuffed, with considerable strain upon one's logic and credibility, into the punched card equipment. It now appears that this hybrid clerical-machine operation will be lifted in its entirety once more, and dumped into the EDPS storage drums.

To anyone disputing this, I will simply point:

a. to a payroll procedure, "mechanized," which employs some 30 or so clerks with 7500 paychecks to process. A truly mechanized payroll procedure, providing weekly paychecks for some 1200 employees, requires only *part* of one clerk's time;

b. to the coding of ledger captions in the supply system, which right now employs the caption "13" for the opening inventory, followed by "01," immediately creating an out-of-sequence condition which must be considered in all subsequent machine operations;

c. to the maintenance of stock status balance cards in the files, the sequence of which is such that re-sorting is the first consideration in any machine functions utilizing those balance files;

d. to the innumerable "exceptions" to data processing which result in a great many cases, in the handling of groups and more groups, thus reducing the effective processing speed of the machines.

The move from one method, be it manual or punched card, to another, such as EDP, should be a whole move. Reporting requirements should be re-appraised in the light of new machine capability, speed and capacity. In the change over from manual to punched-card it would seem that in many cases the original objectives were lost sight of, and the duplication of the manual process by machine became the objective. The subsequent change-over from punched-card to EDP, if allowed to develop in the same vein, will leave only the increased cost of the system to be considered. The vastly increased speed and capacity will have been used up in the attempt to duplicate the punched-card system, which was itself an attempt to duplicate the original manual system.

This too, can readily be seen in the all-too-common approach to EDP, which says, in effect: "How have we been doing this? Now, how do we do it with an electronic calculator?"

One can see the dilemma of EDP analysts unfold as, in their attempt to duplicate the manual-clerical-punched card system, they are forced more and more to off-line processing. With each additional off-line procedure resorted to, the potential of the EDPM is diminished. With each additional piece of auxiliary equipment the cost of the EDPM is enhanced. Only a correct and essentially valid approach to EDPS will give us what we want and expect from the "miracle" machines—increased speed of data processing at lower cost, per record.

This approach appears to me almost divinely simple. We know what we have in the way of source data, where, when and in what format it is available. The various service manuals tell us specifically what is required in the way of end-results. Local management knows what it requires in the way of local reporting. All of the area between source data and the required end result should depend solely on the type of data processing equipment utilized (be it manual, punched-card or EDPM) and operating procedures drawn accordingly.

Leonard J. Palmer

IBM Project Planner
Machine Records Section
San Francisco Naval Shipyard

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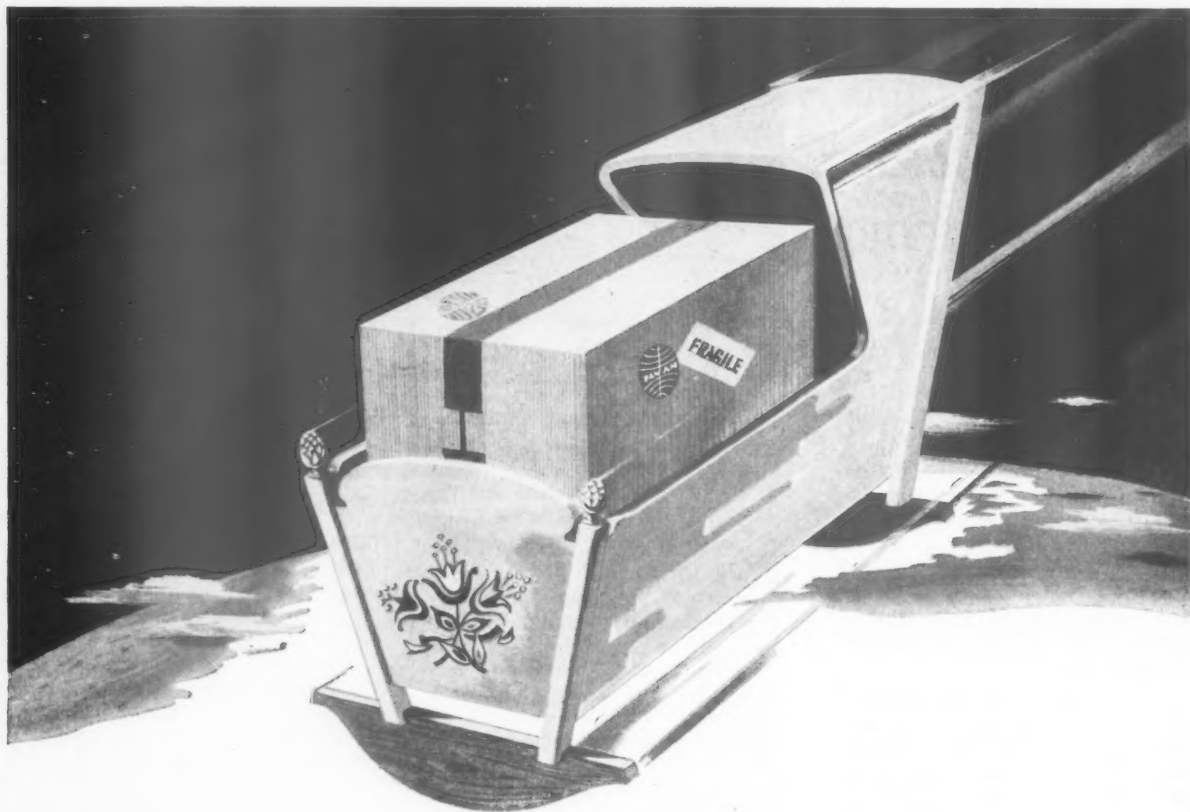
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ARMED FORCES MANAGEMENT



Washington Background

FEARING DEFENSE MAY BUMP ITS HEAD AGAINST A BUDGET CEILING, DEFENSE WEAPONS SYSTEM EVALUATION GROUP is increasing emphasis on anticipating costs of various weapon systems. Most significant recent cost projection study, using Air Force automatic computers: Minuteman vs. Polaris.

FIGHTING TO STAY UNDER THE WHITE-HOUSE-IMPOSED BUDGET CEILING, Pentagon has been forced to give separate Services vital either/or decisions to make. Although Defense will neither confirm nor deny the choice offered these are the most likely major ones:

Army—Chief of Staff Maxwell Taylor can have his \$3 billion-a-year (for five years) Army modernization program if he's willing to take another manpower cut—probably in the neighborhood of 60,000 bodies over the five-year stretch. Argument: 1—better to have a small modern Army (with the same fighting punch) than a larger, out-dated one; 2—“modernization,” better management of personnel, more delegation of authority to field and resultant cut in support-type personnel needs would mean same job could be done by less personnel anyway; 3—successful drive to increase foreign military assistance should cut limited war manpower requirements of U.S.

Navy—more dollars for fleet ballistic missile submarine program or nuclear-powered aircraft carrier. Argument: in a back-to-the-wall hassle, Navy will take the first one. No matter how it's powered, a 30-mile-an-hour floating island at its present market cost has no place in tomorrow's high-mobility, thousands-of-miles-an-hour, outer-space conflict. Besides, 50 missile-carrying, nuclear submarines spread around the North Pole are, like SAC, impossible to defend against short of a fantastic outlay in Soviet money and hardware.

Air Force—more money for Atlas and Titan (and they have an edge on the “go-with-what-you've-got” theory) and another \$100 million a year for the nuclear aircraft program at the sacrifice of Minuteman—i.e. use of land-based version of Polaris instead.

Biggest wrench that could be thrown in this whole plan is on the horizon: a Congress which, for the first time in years, seems ready to give Defense Department more money than Pentagon feels it can justifiably ask of our nation's peacetime economy.

DEFENSE MAY REQUEST CONGRESS CHANGE SOME OF ITS BUDGET PREPARATIONS rules next year to stay more in line with new ways military manages its business. Air Force weapon system proponents, for instance, would like to see requests to Congress listed by weapon system costs, not line item costs within the system. Reason: Congressmen should be approving, or vetoing, a total system—not the bits and pieces of the system; Capitol Hill would have a better idea what a weapon really costs. (Legislators are usually quick to OK buying a new missile, for instance; then nit-pick requests for ground support equipment and the like to back it up—like giving military a new car but no key to start it.)

WORD IS CIRCULATING CAPITOL HILL THAT ARMED FORCES SUPPLY SUPPORT CENTER, described in this issue, and the entire federal cataloguing operations have reached a do-or-die threshold. House critics, particularly, have griped privately that, after spending over \$150 million, only result has been a 10% commonality in supply items—“obviously not worth the investment.” Reason for the wait-and-see: AFSSC will probably inject common sense and real engineering criteria into the classification—something that should have been done when operation first started. If they don't, Congressmen have promised to stomp on the setup with both feet.

ONE POSSIBLE REASON FOR THE CHOICE OF DR. HERBERT YORK as new Research and Engineering Director stems from his former job with Advanced Research Projects Agency. His knowledge of ARPA would make for smooth absorption of that agency within overall Defense R&D set up. Pentagon crystal-ballers are looking for quick work in setting up the R&D organization after long-delayed appointment.



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Formula for the Future: Military/Industry Cooperation

by Vice Adm. E. W. Clexton
Chief of Naval Material

YOUR Navy is the most modern naval force in the world. Scientific discoveries and technological advancements during the last decade have revolutionized many previous concepts of naval warfare. Guided missiles, rockets, nuclear powered submarines are today well known military items. We are continually faced with the tremendous task of keeping our procurement methods and policies in pace with this surging tide of technical progress.

Our foremost objective is, of course, to get the most defense for the money. And we must do this NOW . . . with decision and without delay. National survival can well depend on timely action. We, as the military managers, have the added and, at times, seemingly contrary responsibility for acting in the best interest of the general economy of the United States.

We have, for example, the responsibility of assuring that small business participates in a fair share of defense programs. We must always be cognizant of the problems of distressed labor areas. We must be always alert to the national interest in developing sources of defense materials.

Our task is a large one, indeed. We have made considerable progress. And much more must be made.

In a time when we are engaged in a race for improved weapons, it is of primary importance to the nation that we manage our research and development programs so that we obtain such weapons with minimum delay. We must conserve skilled scientific and technical manpower. And we must attempt to obtain scientific breakthroughs as inexpensively as possible.

The number of research areas in

which the Navy is interested is extremely large, simply by virtue of the technological requirements of our defense and the mediums in which we operate. We have sponsored research into such various subjects, for instance, as the nature of outer atmosphere, the flora and fauna of Arctic regions, the propagation of sound in all media, and the behavior of light metals at extremely high and low temperatures; we have sponsored development of one-man flying platforms and vertical takeoff aircraft.

In just this small cross section can be seen the variety of organizations, facilities, and skills which must be employed to carry on our research and development programs.

Although the Navy's objective always has been to seek out the most competent firms to perform our research and development work, it is obvious that the selection of the organization with the highest technical competence in each of many dissimilar areas is a very complex problem in scientific and technical administration. With this complexity in mind, the Navy has issued a definite policy governing the award of research and development contracts.

This policy provides that research and development contracts shall be awarded to those firms which have the highest competence in the specific branch of science or technology required for the successful conduct of the work. It further provides that because of the exploratory nature of re-

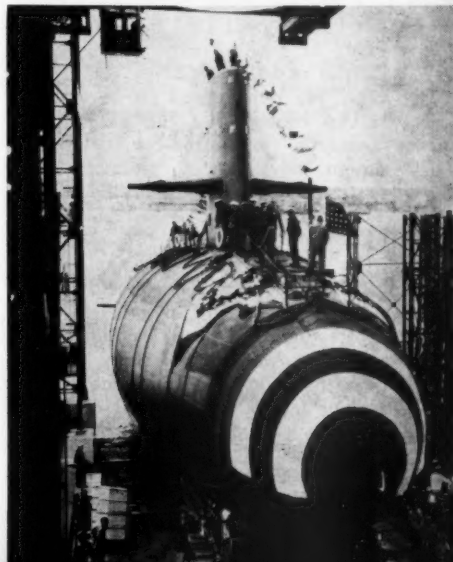
search and development and the uncertainties of successful accomplishment, cost-reimbursement type contracts shall generally be used.

As a result, award of such work is normally based upon the comparative technical ability of the proposed contractor rather than on comparisons of estimates of cost, since in cost-reimbursement contracts advance estimates of cost do not provide valid indicators of final actual costs. This policy on research and development is not a new one. Indeed, it is hard to conceive of any other approach.

Certainly it can reasonably be expected that the firm which is most advanced in the specific field involved in each of our research, development or design problems can resolve that problem quickest at least cost and with the least duplication of scientific effort.

In order to minimize the preparation of technical proposals which can be both costly and wasteful of sci-

Nuclear submarine Skipjack is only one of many ultra-complex weapon systems that must be supplied and managed by Navy.



tific and engineering manpower, technical proposals are usually requested only from firms which have been technically evaluated and found qualified to perform the specific work involved.

We recognize that in the interest of national defense and the national economy that the number of firms engaged in research and development work for the Navy must be expanded and that there must be an increase in participation by competent small business firms.

With this in mind, the Navy's policy places responsibility upon personnel of the Navy for actively seeking out and developing information concerning firms which have competence for research and development, particularly small business firms, and for utilizing such firms to the maximum practicable extent in Navy research and development work.

To achieve this objective, our policy provides for a unified effort by cognizant technical personnel, contracting officers, and the Navy Small Business Specialists.

The critical need for rapid technical progress has resulted in a re-evaluation of military procurement with particular attention focused on lead time required for the development and production of new weapons by the military departments. Much has been said recently regarding the military's use of the weapons system concept in procurement.

Many observers contend that past procurement practices fail to shorten lead time, because of administrative inertia, restrictive provisions of the Armed Services Procurement Act, and failure to delegate greater authority and responsibility to contractors.

On the other hand, others contend that further development of the weapons system concept will unfavorably affect the nation's economy by placing more and more military dollars into the hands of a limited number of large companies.

From the outset it has been apparent that a great deal of disagreement exists in defining just what is meant by the so-called weapons system concept. The purest form of the weapons system concept has the single prime contractor responsible for the over-all design, development, production and performance reliability of the system. This pure concept is seldom if ever used undiluted.

In actual practice the Navy retains certain important management responsibilities and assigns to associate prime contractors other responsibilities.

Our re-evaluation of Navy procurement programs has highlighted ways and means to shorten lead time. We are fully aware that the items being

bought, especially in the missile field, are becoming increasingly complex and they require a great deal of scientific and engineering effort throughout their development and production.

As weapons become more complex, the problem of furnishing the necessary manpower to administer weapons contracts becomes acute. The Navy is constantly faced with the internal problem involving the availability of trained scientific and engineering personnel to successfully administer a particular program.

In buying complicated weapons, we have to make a decision on the method of procurement in each case depending upon a number of considerations. These include the complexion of the weapon to be bought, the capabilities of the contractors who might produce the weapon, the producibility of the weapon as a system, and, finally, the requirements for compatibility.

Close analysis will determine if it is desirable to place complete management responsibilities for the integrated weapon system with one contractor or if we should retain our normal management responsibility in the program or if we should settle on a position somewhere between the two.

In applying the systems concept, it is becoming increasingly apparent that no set formula can be established for solving individual situations.

Procurement of modern weapons results in the expenditure of enormous sums of money. The items of cost making up the total price of a weapon must be closely examined.

One of the most important cost items in weapons pricing is that of purchased materials. The Navy defines purchased materials as raw materials, subcontracts, purchased parts or components, or any other item utilized in the manufacture or assembly of the material or the end item to be delivered under a contract and which is not fabricated or produced by the prime contractor.

Purchased materials under a prime contract generally represent from forty to ninety per cent of the total price of the contract. We anticipate the maximum utilization of the management skills and know-how of our contractors in the performance of the contracts awarded to them.

We review the contractor's application of his management techniques and adherence to Department of Defense policies during the negotiation stages through a close look at his subcontracting plan. Except in circumstances involving mobilization or extremely unusual technical considerations, we do not attempt to direct how or where a prime contractor will obtain its purchased materials or services.

We do, however, using our experience with either the contractor or the item, or both, assure ourselves of the adequacy of the contractor's purchasing practices and the reasonableness of the proposed purchased material prices to assure that the prices paid are fair and reasonable.

The ultimate result of these assurances is reflected in the pricing arrangements established for the prime contract so that a contractor is continually encouraged to perform efficiently and economically with his earnings commensurate to the success of his performance.

Such are some of the high points in Navy procurement.

What about the future? It is quite evident that because of increasing rigid personnel ceilings, Government's inability to compete with industry for top flight engineering talent, and particularly because of rapidly accelerating scientific progress, we will inevitably continue to use the engineering and business management abilities of our contractors to the extent indicated by the problems which we are called on to solve.

We will continue to go to the most promising sources with our research and development requirements. To the extent that we are able to conclusively evaluate the comparative capabilities of companies in the research and development field, we will avoid costly and wasteful effort by industry in preparing technical proposals.

Every effort will be made to explore all available sources of competent research and development talent to insure that we are truly contracting with those most capable of achieving our program goals. Unless industry improves its purchasing, accounting and contract administration techniques, it is inevitable that more evaluating procedures will be applied, particularly in the cost-reimbursement and the subcontract areas.

The perennial problem of contractor performance delinquency will continue to be given full attention. Steps will be taken to emphasize the need for positive compliance with contractual requirements. Procurement directives and procedures will be further refined and detailed. Effort will continue to be made to delegate basic operational authority to the level where the operational responsibility exists.

And throughout we will recognize that it is vital that our procurement policies keep pace with rapid engineering progress, accelerating scientific breakthroughs and improved business methods so as to speed up our military progress and enhance the nation's security.

This is no small challenge.

ARMED FORCES MANAGEMENT



AMC Gets Ready For Change

by General E. W. Rawlings
Commander, Air Materiel Command

PROCUREMENT, in its broadest sense, is a means to an end. From the Air Force viewpoint, it is the means of obtaining from industry, superior air weapons and equipment, and of assuring a steady flow of supplies and replacements to keep those weapons and equipment operationally ready. This objective underlies all of our procurement operations, and must be our basic motivation if we are to have the military force to survive in the air age.

From the standpoint of fulfilling our defense responsibilities, military procurement represents the linkage of the industrial community to the total national effort. This vital linkage connects the scientific community to the industrial community, making possible the exploitation of new knowledge.

Within the industrial community, it gathers into an integrated structure the required skills and know-how, ranging from the extraction of basic materials to final assembly of functional products. Procurement establishes a continuing relationship with the consuming and logistical agencies of the Air Force for the repair and support of our operating forces.

With these broad characteristics in mind, we now look at the size and content of the Air Force procurement program. Our annual requirements from industry are roughly \$10 billion. About \$6 billion of this each year goes for new weapons and equipment,

while about \$4 billion supports the operating Air Force. Placement of the \$10 billion presently involves about 4,000 prime contractor facilities and 2,000 major subcontractors. These figures do not include local purchase of the products we buy to support our bases. Of course, these 4,000 prime contractors are augmented by a much larger number of subcontractors. I would say that at various levels, these subcontractors represent about a quarter of the total manufacturing facilities in the country.

The bulk of the program—about 90%—is handled by the Air Materiel Command, the primary Air Force procuring agency. It has delegated to other Air Force commands the authority to make some local procurement. Within its own organization, AMC buys all new weapons and technically complex items at four main locations.

All manned aircraft weapon systems and aerodynamic non-ballistic missile systems are procured by the AMC Aeronautical Systems Center at Wright-Patterson Air Force Base. This includes major items of equipment, such as the engines, the airborne electronic gear, fire control systems, bomb and navigational systems, and support equipment for specific weapons.

At Inglewood, California, the Ballistic Missiles Center of AMC procures all of the ballistic missiles.

At Rome, New York, we buy the ground electronic systems for com-

munication and control of flying operations.

The AMC Electronic Defense Systems organization, located in New York City, procures integrated warning and control systems for air defense. This consists primarily of our radar fences and the automatic electronic data processing equipment which uses the intelligence from these radar fences.

While these four activities handle the major procurement of new systems and equipment, there is a big job in procuring follow-on support for operating our Air Force. This job is done through our air materiel areas and specialized depots. In general these agencies have responsibility for buying spares, spare parts, and specialized military supplies required to service, repair and modernize our aircraft and missiles. They also buy other durable equipment common to all air bases.

Now that we have spelled out the nature of the Air Force procurement operation, let us look into the way the operation has changed since World War II.

In a very real sense it can be said that the logistics mission is constant. It must provide the weapons and equipment of war, replace or repair broken or worn-out weapons and equipment, and sustain the combat forces in the field.

Though the mission remains constant, the way in which it is carried out changes constantly as weapons and



Project Milk Bottle built long life into B-47 bombers.

force structures change, as new concepts of warfare are developed and as new techniques of transportation and communication become available. In World War II the combination of tremendously large forces, rather complex equipment, great distances, relatively slow transport, and voice and teletype communications resulted in an air logistics structure consisting of huge repair facilities and massive stores of stocks deployed all over the world.

This structure had to be large to support the huge fleets of aircraft characteristic of that stage of warfare, and it was condemned to slowness by transportation and communication limitations. But we could and did live with these things, for in that war, massive action rather than quick response was the key to victory.

The reader is as familiar as I am with the technical changes which have occurred since then. These developments have produced corresponding changes in the nature of war itself. World War II warfare, with its emphasis on mass production and mass logistics, has become outmoded by the development of vastly improved weapon systems.

Military competition between nations now seems to be at a developmental, rather than a mass production level. The key element has become technological progress, not only because the maintenance of an effective deterrent force is dependent upon it, but also because demonstrated, continuing technical superiority has become a condition of world leadership.

What type of logistics will be needed by the new military organization?

Since modern weapons are so much more efficient, it seems reasonable to assume we should not need as many. The mass logistic requirement of World War II is passing from the scene, and is being replaced by a requirement for a much more precise, specialized type of logistics, tailored to the individual needs of complex, costly, and constantly changing weapon systems. The Air Force is making rapid progress in shifting to this new type logistics. Faster transportation and communications, high speed electronic data processing, and highly sophisticated statistical methods of requirements computation are all techniques being used as we move into a logistics by specialization.

As we adopt these new techniques we are able to make significant reductions in both facilities and personnel. Since 1952, four depots—at an estimated cost of over a third of a billion dollars—which were authorized to be built have been cancelled. Also, we have been closing existing depot level

facilities both abroad and at home whenever possible.

Twenty-three facilities have been closed since 1952 and eighteen more are scheduled to be closed by 1962. There also have been significant reductions in depot level personnel. Since 1953 almost 53,000 manpower spaces have been eliminated and by 1962 this reduction, even after deducting functions and spaces transferred to other commands, will total well over 65,000 personnel. Nor have all the reductions been in the field. Since 1951, Headquarters, AMC, personnel have been cut by over 5,000, a 56% reduction.

The Air Force and this Command have been working for some time to develop a better organization and technique for managing weapon systems. One major step in this direction, of course, is the weapon system concept of procurement. By making one contractor responsible for an entire weapon system, and by delegating to him the authority to subcontract for items previously procured by the Government, we have, in effect, extended Air Force procurement actions right into the industries involved.

This has produced dividends in reducing the design-to-production cycle. Whether or not it has resulted in substantial dollar savings to date is a moot question, since we have no data for comparison. But we believe it is a more economical concept than any previous managerial device for the simple reason that integrated design and development fosters more efficient production; and the more efficient production is, the more economical it is.

More recently, we at AMC have realigned the Directorate of Procurement and Production to accommodate the changing philosophies and techniques of logistical support. This was not a reorganization. What we did was modify the existing system to make it better—one more responsive to the needs of our customers, the combat commands. This is the logical and inevitable outgrowth of the increasing complexity of our weapon systems which demands increasing emphasis upon integrated weapon system management.

Basically, we are separating the staff and executive elements from operational elements of the Directorate. Our main objective is to emphasize integrated weapon system management, including not only procurement and production, but also supply, maintenance, transportation, and other functions which constitute logistics support.

The Director of Procurement and Production will continue to provide policy and executive management for all procurement and production

matters. He will be the executive point of contact with industry on such matters and will continue to approve contracts over \$1,000,000. He will be responsible for the delegation of procurement authority and for the staff supervision of procurement and production programs just as other directors are responsible for their functional areas.

The operating element will be known as the AMC Aeronautical Systems Center. It is the focal point to attain integration of operational activities pertinent to procurement, production, maintenance and supply functions during the development and production phase of aeronautical systems, as distinguished from ballistic missile systems. This operational element will include the Weapon Systems Project Offices. For the convenience of our customers, the WSPO's will be grouped under three directorates; Strategic, Air Defense, and Tactical and Support. Other organizational entities will be included to provide propulsion, guidance and other (Government furnished) subsystems, and essential supporting services in industrial resources.

One other aspect of the realignment should be mentioned here. The Directorates and Weapon System Project Offices of the Aeronautical Systems Center are not exclusively compartmented procurement-production units. They will be staffed with military personnel who qualify as Directors of Materiel, and civilian personnel who qualify as Weapon System Integration Officers. Also, experienced supply and maintenance personnel are being transferred on permanent assignment to the weapon systems project offices. In the past such personnel have served on a temporary duty basis. With the realignment, they become integral parts of the unified function.

For some time it has been apparent that one effect of the new weapons and the weapon system approach to them would be gradual consolidation of certain functions which had grown up in the past as sharply differentiated areas of responsibility. The tendency to consolidate has been accelerated by a number of factors—changing maintenance requirements for missiles; development of new techniques of direct support; the expanding use of electronic data processing equipment, which can be exploited to the best advantage when independent of organizational boundaries and arbitrary limitations.

In establishing permanent maintenance and supply specialists in the project offices of the Aeronautical Systems Center, we are taking a major step toward a tighter functional alignment of the future logistics system.

ARMED FORCES MANAGEMENT



Procurement and Logistics

LOOK FOR TEMPORARY SLOWDOWN IN AIR FORCE MACHINE TOOL BUYS. Problem is that AF isn't sure just what they have in the way of machine tool inventory, don't want to buy until they are surer of what they need.

LITTLE PUBLICIZED REASON BEHIND PROJECT SCORE stems from a desperate need on the part of the military for more room in which to handle communications. Standard radio frequencies are fast becoming saturated with military and commercial transmissions. What ARPA is trying to do is to open an entire new range of communications bands with its satellites. For this reason, Project Scorer, in the words of RAdm. John E. Clark, ARPA Deputy Director, "is of a very indefinite length."

STRONG DOD BACKING SHOULD DEVELOP BEHIND NEW PROCUREMENT BILL to be introduced early to Congress by Sen. Leverett Saltonstall, (R-Mass) ranking Republican on the State Armed Services Committee. The reason: DoD has had a chance to go over the bill in advance with the Senator, and has found him receptive to changes. While most of the bill will remain the same as it was before DoD looked at it, many sections will be "permissive" rather than mandatory, and other minor changes are designed to avoid a knock-down, drag-out battle.

LOCKHEED AIRCRAFT CORP'S NEW QUALITY CONTROL DIVISION appears, among other things, to be a move to tip the nuclear aircraft competition scales in their favor. Air Force realizes that tremendously high reliability will be needed for A-plane to successfully fulfill its role as a constantly flying patrol plane. At this writing, Lockheed and Convair/San Diego are leading contenders for A-plane contract.

NEW WAY OF COLD-ROLLING JET ENGINE COMPRESSOR BLADES has been devised by General Electric's Small Aircraft Engine Dept. Method is said to halve blade costs. Because Air Force buys about 300 engines a month, and each contains roughly 1,000 blades, savings will be a minimum of \$3,000 per engine, \$900,000 per month.

WITH RASCAL AND GOOSE CANCELLED, IT LOOKS LIKE THE PURGE IS ON in the area of "Marginal missiles" criticised by Sec'y McElroy. McElroy's statement on these missiles was timed almost to the day with the first fully successful firing of Atlas, and it appears that heavy reliance will be placed on this missile. Especially so since the big bird achieved near-perfect orbit for ARPA. On that shot, margin of orbital calculation error was ridiculously small—within a mile each way on apogee and perigee.

AIR FORCE IS MORE THAN SLIGHTLY RANKLED AT NAVY'S ATTITUDE on current A-plane matters. AF complains that Navy insists on being treated equally in top level dealings, and yet is far behind the Air Force in actual development. Says AF source, "We've spent—together with AEC—some three quarters of a billion dollars on this, and Navy has not yet bent a piece of tin."

RENEGOTIATION PROCESS DUE FOR A CHANGE NEXT YEAR. Congress will attack present method hard, will find as many DoD people who agree with them as not—particularly in Air Force. In giving industry more and more responsibility under AF weapons system development concept, most heard complaint from industry has been that "unfair and unrealistic" renegotiation robs management of incentive to do better job. Say renegotiators: if saving's substantial, target costs very likely were too high in the first place. Real answer is somewhere in between the two. Big question is where.

Procurement and Logistics

Sharp Says Minuteman Needs New Source

Size and weight of the solid propellant engines for the Minuteman ICBM dictate creation of propellant manufacturing sources larger than any presently available, according to Dudley Sharp, Assistant Secretary of the Air Force (Materiel).

Sharp made the statement before a House Armed Services Subcommittee, investigating use of existing defense plant facilities. "In the future," said Sharp, "the technical complexity may present more and more overriding reasons for not using existing plants. I believe the Minuteman is a good example. Final assembly and testing of these weapons must be done in remote areas . . . yet we expect that the components for this missile will be mainly produced in existing plants. . . . We are evaluating all potential production sites for these rocket engines, but operational problems may dictate that new facilities be built."

Sharp, in explaining the Air Force position on facilities, said the old industrial mobilization policies which required stand-by war plant capacity are not adaptable to current problems of maintaining an adequate force in being.

"For these reasons," he said, "the Air Force, under the Department of Defense policy, is actively engaged in a forward-looking industrial security program. This program is aimed at obtaining an industrial base which is adjusted to firm weapon program needs, and is privately capitalized to the maximum degree possible."

Logistics Integration Saves AF \$6.8 Billion

In spite of mushrooming support requirements, Air Force budget requests for Hi-Valu-category spares have been whittled by \$6.8 billion over the last seven years. Savings were realized through greater logistic functions integration, austere buying and more precise Hi-Valu spares management.

This is one conclusion of the Air Force Spares Study Group's Report No. 8, published this month at Air Materiel Command Headquarters. The report analyzes past progress in Air Force Logistics; describes generally the techniques which have made progress possible; and takes a look into the future.

Among the milestones:

1—Using hi-speed transportation for items whose mission and mone-

tary value warrant it. ZI pipeline time (from depot to base and return) has been cut from 30 to 8 days, overseas pipeline from 124 to 32 days. Based on fiscal 1958 cost standards, this has reduced spares requirements \$119 million—enough to pay LOGAIR (AMC-managed, commercially operated airlift service) budget for about five years.

2—Emphasis on reducing packaging weight and bulk has saved over \$8 million in the past year.

3—New methods for determining item service life have reduced requirements in relatively minor areas of selected helicopter components and propeller items by nearly \$5 million total. In maintenance, coordinated Air Force/contractor action cut shop floor time on several components. Repair time for some ground radar components was cut from 14 weeks to just over two.

4—Hi-Valu Review Board earned praise as one of the most effective tools AF has developed for well balanced materiel management decisions. Report No. 8 details the impact of Board decisions on effectiveness and economy.

5—Big item mentioned was the aircraft engine, representing nearly half of each dollar invested in aircraft spares support. AMC's record: in 1950-51 they were buying about five spare engines for every four installed in airplanes. Today they are buying one spare engine for every four installed.

Noting that logistic progress has been possible primarily through using selective item management, tailoring systems for the commodity, and integrating logistics functions, the Report observes that transition (to missiles, higher-performance aircraft) will be a normal operating condition from now on.

The conclusion: "Intelligent anticipation of future trends and a reasonably flexible overall system geared to absorb inevitable change are the essential ingredients of an effective logistics system. We cannot restrict weapon or tactical developments—but we can reasonably predict and plan for them."

New Machine Speeds Drawing Reproduction

Heavy cuts in contracting paperwork costs are the aim of a new process, called Xerography. Basis of the idea is a machine called the XeroX Copyflo 24 Continuous Printer.

The machine enlarges microfilmed copies of engineering drawings, mount-



Guided missile frigate slides down the ways, as Navy's fleet of these ships continues to grow. Navy has stopped buying naval guns at Bureau of Ordnance in Washington, is modernizing fleet.

ed in punched data-processing cards, to a maximum width of 24 in. and any length. Prints are dried at the rate of 20 linear ft. per minute.

Air Force has one at Air Materiel Command Headquarters, and is spearheading a drive to put the process in extensive use. It plans to have the machines at all Air Materiel Area headquarters by mid-1959.

With the development of a smaller similar machine, the 1824, Air Force plans to have Xerography equipment at all of its bases by 1960. Army/Navy plans are on the same scale. Claim is that materials savings alone can justify conversion to the new equipment.

Submarine Cable Aids AMC Communications

The "greatest recent single improvement" in logistics communication support has been announced recently by Air Materiel Command. Six months of transmitting data on submarine trans-Atlantic cable has shown cable communication of punched card logistics records faster and more reliable than radio, and has made radio costs look ridiculous.

Air Force leased one overseas circuit part-time for testing last year during off-peak hours. Cost of the part-time cable circuit is \$210,000 annually. Equal capacity high-frequency radio circuits would cost \$1.5 million each year.

Other comparisons between radio
ARMED FORCES MANAGEMENT

and cable show: (1) Reliability—radio 75%, cable 100%; (2) Speed—radio, 3 cards per minute, cable, 39 cards; (3) Cost per card—radio, 12.7 cents, cable, 1.8 cents.

Projecting their experience, based on use of new high-speed terminal gear and use of one circuit's capacity full time, AMC says cable communications would cut yearly cost from \$6.65 million (for present radio) to only \$355,000 for cable.

Drawbacks to the program are essentially these: (1) cost of laying cable; (2) Air Force would not need the cable full-time; (3) industry is locked out of the field by an FCC regulation; (4) cable people are reluctant to service remote Air Force outposts; and (5) it will take considerable development—not as yet backed by industry—to get enough cables down to do the Air Force much good.

Saltonstall Promises

Procurement Bill

Sen. Leverett Saltonstall (R-Mass), ranking minority leader of the Senate Armed Services Committee, has said he will reintroduce legislation to overhaul military procurement practices. Weapons system buying and renegotiation times are the main targets of the bill.

Similar legislation was proposed by Saltonstall at the end of last year's Congress, but no action was taken. Under the bill, it is understood that the weapons system procurement method would be extended to all major weapons programs. Also, the tentative bill is said to provide for exemption of incentive fixed-price contracts from renegotiation.

Saltonstall said that his bill is designed to trim lead times from weapons systems at the buying level. The Massachusetts Senator has conferred with Pentagon officials, and the Justice Department is expected to report on possible anti-trust aspects of the bill.

GAO Says Air Force

Overpaid AC Spark Plug

General Accounting Office has reported that Air Force overpaid AC Spark Plug Division of General Motors Corp. to the tune of \$975,000, when military buyers failed to account for unexpected price cuts.

GAO charged that unreasonably high prices resulted from Air Force officials' awarding the \$7.79 million fixed-price contract without any real competition and without proper examination of anticipated manufacturer's costs.

AC General Manager J. A. Anderson

challenged GAO contentions, and said that AC reimbursed the government for \$750,000. Assistant Secretary of the Air Force (Materiel) Dudley Sharp has said that the contract was awarded to the lowest bidder.

Hebert to Probe Contract Disputes

The Hebert House Armed Service Investigations Subcommittee will schedule an investigation into alleged delays by contracting officers in cases of contract disputes. Although the announcement was made early last month, no timetable has been announced.

The Hebert group last month completed hearings into alleged delays in the procedures of the Armed Services Board of Contract Appeals. During these hearings, Hebert said contractors complained of foot-dragging by contracting officers, before the cases reach the board.

"If delays are as long as the Board indicates," said Hebert, "then we must do something about contractual practices concerning the time in which a decision must be reached."

Rascal Missile Is Cancelled

The Rascal air-to-surface missile contract with the Bell Aircraft Corp. has been cancelled. Bell will continue to build those missiles already in production.

Reasons for the cancellation were rapid technological breakthroughs in the air-to-surface missile field, and the fact that the North American Hound Dog is soon to become operational.

Another missile was also cancelled by the Air Force last month, the Fairchild Goose ground-launched decoy. In place of Goose, Air Force is ex-

pected to develop the McDonnell Quail, an air-launched decoy. "Changes in operational concepts" were given as reasons for the contract termination.

Army to Manage Own Maintenance Work

Army has pulled completely away from the Air Force in the area of aircraft/helicopter maintenance and overhaul. The gradual pulling-away process began early in 1958.

Under the new set up, major overhaul will be done by Army contractors at their own plants, under 24-month contracts. They will pick up the IRAN work under a soon-to-be-created qualified bidders' list.

An Army spokesman said there are no plans for Air Force-type depot maintenance. On the other hand, Army has recently done much work developing a field maintenance capability.

Gen. Taylor Outlines Army Weapon Needs

Second-generation missiles, light atomic weapons, improved conventional weapons and new air and ground vehicles for improved tactical mobility are needed by the Army, according to Gen. Maxwell D. Taylor, Army Chief of Staff.

Taylor stressed the glamour of Strategic Air Command, and said "I would like to find a similar intentness on the limited war problem." He said he would like to feel that Army was as well prepared for limited conflict as the Air Force is for an all-out war.

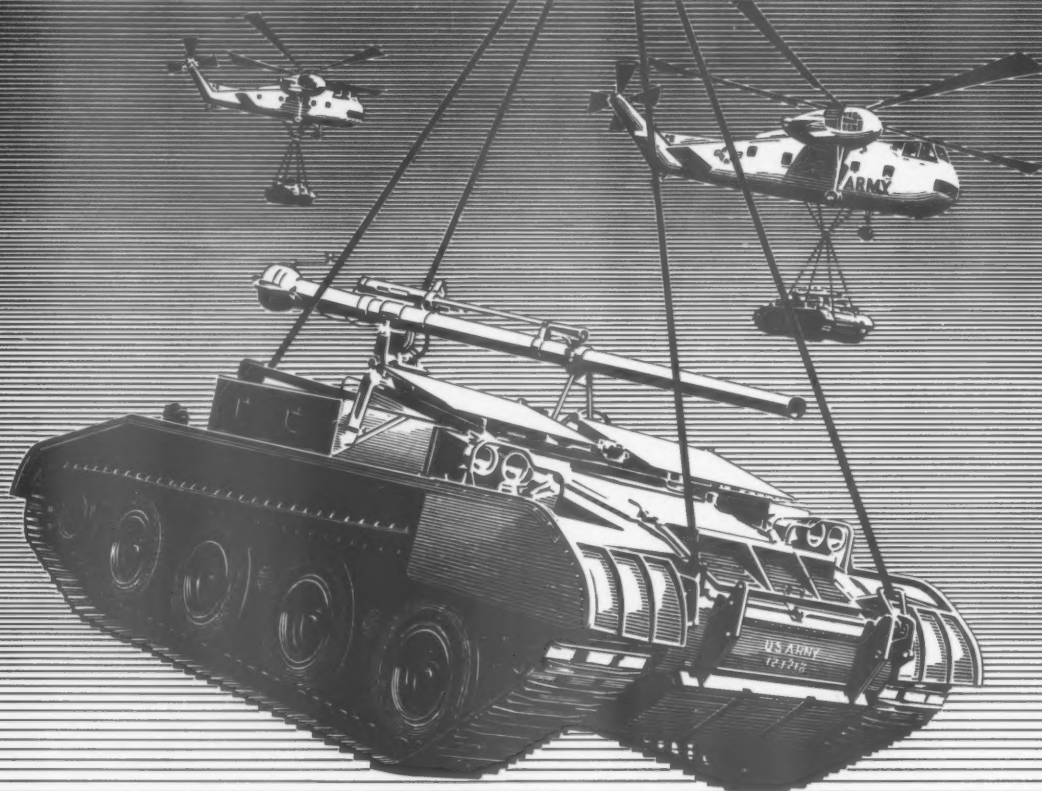
Expressing himself as "loyal" to the tri-service division of responsibility, Taylor said Army does not want its own air force, adding that he hoped AF would "Keep us in mind" in modernizing its equipment.



Navy is spending \$1-million for improved Sidewinder guidance system. Proven in Formosa Straits, the weapon has been operational for two years.

CODE WORD:

EXPERIENCE



... FROM CONCEPT THROUGH PRODUCTION!

Vehicle design is a continuing process at the Cleveland Ordnance Plant from concept, mock-up, design, test and development—to final field performance on the 453-acre proving ground. Take the “in production” M56 chassis for example. It is ultralightweight . . . extremely ground mobile . . . air-transportable by helicopter or cargo aircraft . . . air-droppable . . . adaptable as a weapons, cargo or personnel carrier, reconnaissance vehicle, missile transporter or launcher, and numerous other uses. This is the kind of vital experience and imaginative engineering the Cleveland Ordnance Plant provides the Armed Services.



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Who Buys What Where

The following list shows the major procurement offices in each of the three services, and the hardware they buy. Starred (*) procurement offices are buying points which serve as Single Managers for all three services.

Further information on the items purchased locally, or those procurement offices which buy services not indicated here may be obtained by writing to the Assistant Secretary of Defense for Supply and Logistics.

ARMY

**Contracting Officer
The Adjutant General's Office
Washington 25, D.C.**

Specially printed continuous, marginally punched forms; hectograph master sets, cut sheets and continuous printed; offset masters, paper, cut sheets and continuous printed; stencils, mimeo, die impressed and form topped; snapout sets, printed; offset master, hectograph master; file folders; general book or publication printing; printed cards and inserts for visible record systems; silk screen printing; pressure adhesive; bookbinding; envelopes.

**U. S. Army Chemical Procurement
District
290 Broadway,
New York 7, N.Y.**

Commercial chemicals; toxic chemicals; smoke dyes; incendiary chemicals; smoke generating equipment; chemical plant equipment and accessories; flame throwers; incendiary, toxic and smoke bombs and clusters; repair parts for Chemical Corps material; respiratory protective equipment; chemical munitions.

**U. S. Army Chemical Corps Proving
Ground
Dugway Proving Ground
Dugway, Utah**

Supplies and services incident to testing of Chemical, Biological and Radiological Warfare equipment and applied research to develop methods and techniques for air sampling, ecology and epidemiology; electronics and instrumentation, services and supplies in support of these testing and research projects.

**Military Clothing and Textile Supply
Agency*
2800 South 20th St.
Philadelphia, Pa.**

Clothing of all types; badges, decorations, insignia, medals; canvas fabricated items; flags, pennants and banners; headware; leg irons; miscellaneous textiles; lockers, trunks; packboards and attachments; bedding; dyeing and finishing

of textiles; footwear; leather and leather fabricated items; plastic and plastic fabricated items; webbing fabricated items; rubber and rubber fabricated items; textiles of all types.

**Ordnance Ammunition Command
Joliet Arsenal
Joliet, Illinois**

Ammunition; explosives and explosive ingredients; explosive processing equipment; flares; grenades; land mines; rockets and signals.

**U.S. Army Ordnance Missile
Command
Redstone Arsenal, Ala.**

Major combinations or systems or end items for guided missile systems; aerial target drones; ground equipment for guided missile systems.

**Ordnance Tank-Automotive Command
1501 Beard St.
Detroit 9, Mich.**

Automobiles, combat vehicles; motorcycles; trucks; tanks; motor scooters; tractors; trailers; tires, tubes; batteries.

**Ordnance Weapons Command
Rock Island, Ill.**

Artillery charges; artillery mounts; artillery recoil mechanisms; artillery targets and target materials; launchers; machine guns; small arms; small arms targets and target material; ammunition clips; ammunition magazines; electrical generating equipment for seacoast artillery; seacoast artillery.

**Frankford Arsenal
Bridge and Tacony Sts.
Philadelphia 37, Pa.**

Cartridge brass; fire control equipment; optical instruments and accessories; watches.

**Raritan Arsenal
Metuchen, N.J.**

Cleaners; lubricants; preservatives; recoil oils and fluids; special oils and fluids; packing and gasket materials; miscellaneous hardware; abrasive materials; non-metallic fabricated materials; antifreeze.

**Rossford Ordnance Depot
Toledo 1, Ohio**

Automotive tools; tool sets and tool equipment; ordnance tools, tool sets and shop equipment; tires and tubes; maintenance and repair shop equipment; hand tools, measuring tools and miscellaneous tool material.

**Watervliet Arsenal
Watervliet, N.Y.**

Artillery cannon; mortars; recoilless rifles.

**U.S. Army Transportation Supply and
Maintenance Command
The Mart Bldg.
12th and Spruce Sts.
St. Louis 2, Mo.**

Railroad cars, locomotives and related equipment; household shipping containers; aircraft, aircraft engines and related items; wire rope, slings, chain, rubber hose, hooks and shackles, steel plate, strip steel, clamps, manila rope, angles and bars, aluminum sheets, tires.

**U.S. Army Signal Supply Agency
225 South Eighteenth St.,
Philadelphia 3, Pa.**

Commercial/military communications equipment; telephone equipment; telegraph equipment; radio receiving and transmitting equipment; radar equipment; meteorological equipment; wind, sound; heat, flash and radiation ranging and detection equipment; computers and automatic data processing equipment; teletypewriter and facsimile equipment; dry batteries; power supply units; communications power equipment;

special photographic equipment and cameras; television equipment and cameras; antennae, masts, poles, towers and mounts for any of the above; cables, cords, wire for and of the above; mobile maintenance units and vans for the above; applicable components, parts, supplies, kits and ancillary items; testing; maintenance and calibrating assemblies; instruments.

**U.S. Army Engineer Procurement
Office
Chicago, Ill.**

Troop construction equipment, tractors, military bridging, electric generating sets, pumps, compressors, water purification, fire-fighting equipment and other construction material.

**Columbus General Depot
Columbus, Ohio**

Books and publications; detergents; furniture; packing and crating supplies and equipment; printed matter; office supplies; containers; kitchen equipment; paper and paper products; refrigerators; fiberboard; tools, hand and power operated; hand and power operated vehicles.

NAVY

**Bureau of Aeronautics
Department of the Navy
Washington 25, D.C.**

Airframes; aircraft and missiles; aircraft engines, jet and reciprocating; photographic equipment; propellers; electronic equipment; aircraft armament; fire control systems; aircraft maintenance equipment; aeronautical instruments; target drones; fuels and lubricants; air ships; ground handling equipment for aircraft and missiles; aircrew systems.

**Bureau of Ordnance
Department of the Navy
Washington 25, D.C.**

Ammunition; fire control equipment, including radar; missile launchers; torpedoes; mines; depth charges; aviation ordnance; guided missiles; special weapons; propulsion units.

**Bureau of Ships
Department of the Navy
Washington 25, D.C.**

Ships and other watercraft, including hulls and machinery, propulsion and control equipment; electronic equipment, including radar, radio, and other communications equipment and accessories; refrigeration and laundry equipment for shipboard use.

**Bureau of Yards and Docks
Department of the Navy
Washington 25, D.C.**

Floating dry docks; floating cranes; major boiler plants; electrical generators; public utilities services and permanent facilities, including acquisition and disposition of real estate.

**The Quartermaster General
Headquarters, U.S. Marine Corps
Department of the Navy
Washington 25, D.C.**

Automotive spare parts, engineering equipment and supplies; electronic equipment and spare parts; refrigeration and air-conditioning equipment; household supplies; galley equipment, laundry equipment.

**General Stores Supply Office
700 Robbins Ave.
Philadelphia 11, Pa.**

Hardware and plumbing fixtures; building materials; heating, ventilation, and refrigeration equipment; soap, chemicals, electric light equipment; general household equipment, including electrical appliances; insulation materials; packing materials; shipboard furniture; precision instruments, bearings, valves, pumps, air compressors, navigational and mooring aids; gases;

fire-fighting and gas-generating equipment; foundry equipment; ferrous and nonferrous metal basic shapes and forms, paints; sealers.

Aviation Supply Office
700 Robbins St.
Philadelphia 11, Pa.

Aircraft spare parts, aeronautical instruments, electronic equipment, clocks, marine hardware; marine lifesaving equipment.

Electronic Supply Office
Great Lakes, Ill.

Electric maintenance and repair parts to support existing Navy equipment.

Ships Parts Control Center
Naval Supply Depot
Mechanicsburg, Pa.

Spare parts for shipboard equipment—gasoline engines, diesel engines, hull equipment, machinery components, searchlights, gyrocompasses, dead-reckoning equipment, navigation equipment.

Yards and Docks Supply Office
Naval Construction Battalion Center,
Port Hueneme, Calif.

Construction and excavating equipment repair parts; automotive repair parts; tires, tubes, and re-tread materials; automotive repair equipment; pumps; compressors; building materials; prefabricated buildings; Navy landing pontoons and propulsion units; electrical generating equipment; refrigeration equipment; station and utility repair parts; materials handling spares.

Fuel Supply Office
Naval Gun Factory
Washington 25, D.C.

Coal and other solid fuels.

Military Medical Supply Agency*
84 Sands St.
Brooklyn 1, N.Y.

Medical, dental, surgical and veterinary supplies and equipment.

Navy Purchasing Office
Temporary D Bldg.
4th & Independence, SW
Washington 25, D.C.

Common handtools; machine tools; materials handling equipment; air-conditioning and refrigeration equipment; ferrous metal basic shapes and forms; household and quarters furniture.

Navy Purchasing Office
3d Ave. and 29th St.
Brooklyn, N.Y.

Insecticides; waxes; precision instruments—navigational, optical, electrical measuring; ecclesiastical items; officers' mess gear; fiber, fiber rope, cordage, and twine.

Submarine Supply Office
Rittenhouse Square Bldg.
19th and Walnut Sts.
Philadelphia 3, Pa.

Spare parts peculiar to submarines, including components and accessories for air conditioning and refrigeration equipment; hoists, winches, windlasses and capstans; electrical distribution and control equipment; electric motors; parts and accessories for rotating electrical equipment; electrical quantity-measuring instruments; metal valves and pipe fittings.

Military Petroleum Supply Agency*
Washington 25, D.C.

Petroleum, fuels and lubricants and related equipment.

Military Sea Transportation Service*
Department of the Navy
Washington 25, D.C.

Responsible for obtaining services for operation of tankers, and for repair and alteration of MSTs vessels, and for procuring space on commercial lines for both passengers and cargo.

AIR FORCE

AMC Aeronautical Systems Center
Wright-Patterson Air Force Base, Ohio

Aeronautical weapons systems and support systems, complete; related initial ground support, spares, spare parts, special tools and test equipment for initial support of the tactical and depot operations, except initial spare parts, special tooling and test equipment for propulsion systems which are procured by the AMA having engine management responsibility; CFE and GFAE procurement of complete aircraft/missile engines; navigational, flight, meteorological, time measuring testing and engine instruments; automatic pilot and airborne gyros; aircraft wheels, brakes, tires and tubes; airborne radio and radar equipment; bombing and gunnery; fire control systems and equipment; miscellaneous aircraft accessories and components; photographic equipment.

AMC Ballistic Missile Center
Inglewood, California

Ballistic missiles and space vehicle, complete; initial contracting for related ground support.

Memphis Air Force Depot
Mallory Air Force Station
Memphis, Tenn.

Motor vehicles, trailers and cycles; tractors; vehicular equipment components; gasoline reciprocating engines and components except aircraft, diesel engines and components; engine fuel systems components except aircraft, engine electrical and cooling systems and components except aircraft; engine air and oil filters, strainers and cleaners except aircraft; gas generating equipment; materials handling equipment; construction, mining, excavating and highway maintenance equipment; fire-fighting equipment; lubrication and fuel dispensing equipment; electric vehicular lights and fixtures, non-aircraft.

Dayton Air Force Depot
Gentile Air Force Station
Dayton, Ohio

Spare parts & test equipment for airborne radio, radar and navigational equipment and components; airborne communications equipment; electrical and electronic equipment components; laboratory and shop test inspection equipment and maintenance parts; measuring tools; inspection gages; combination and miscellaneous instruments.

Mobile Air Materiel Area
Brookely Air Force Base
Mobile, Ala.

Airframe structural components; aircraft air conditioning, pressurizing and breathing oxygen equipment; aircraft and engine accessories and components; mechanical power transmission equipment; alarm and signal systems; special industry machinery and equipment; rope, cable, chain and fittings; pumps and compressors; refrigeration and air conditioning equipment; furnace, steam plant and drying equipment; valves; plumbing, heating and sanitation equipment; water purification and sewage treatment equipment; pipe, tubing, hose and fittings; construction and building materials; prefabricated structures and scaffolding; hardware and abrasives; hand tools; lumber, millwork, plywood and veneer; ship and marine equipment; containers and packaging materials; brushes, paints, sealers and adhesives; non-metallic fabricated materials; metal bars, sheets and shapes; ores, minerals and their primary products; signs, advertising displays, identification plates.

Rome Air Materiel Area
Griffis AFB
Rome, N.Y.

Ground radio, radar and navigational equipment; meteorological equipment, instruments (except airborne) and supplies; ground communications equipment; structural and installation parts for communications equipment; electric power and distribution equipment; photographic supplies; commercial electrical equipment and supplies; airport lighting fixtures; lighting fixtures and lamps except aircraft and vehicular; electric wire and cable.

Middletown Air Materiel Area
Olmsted Air Force Base
Middletown, Pa.

Airframe structural components and aircraft engine parts; guided missile components support; fuels, lubricants, oils, waxes and corrosion preventive compounds; chemicals and chemical products; gases, compressed and liquified and gas cylinders; miscellaneous instruments and laboratory equipment; electrical meters and maintenance parts; specialized flight clothing; parachutes and aerial pick-up and cargo tie-down equipment; service and trade equipment; food preparation and serving equipment.

Ogden Air Materiel Area
Hill Air Force Base
Ogden, Utah

Airframe structural components and engine parts; guided missile components support; aircraft landing gear components; aircraft wheels, brakes, tires and tubes; aircraft hydraulic vacuum and de-icing system components; training aids and devices; ammunition and explosives; ammunition maintenance and repair shop specialized equipment; ammunition packaging and special containers; biological surveillance laboratory equipment.

Sacramento Air Materiel Area
McClellan AFB, Calif.

Airframe structural components; electrical generators and generator sets; aircraft auxiliary fuel tanks and pylons.

Oklahoma City Air Materiel Area
Tinker Air Force Base
Oklahoma City, Okla.

Airframe structural components and aircraft engine parts; guided missile components support; miscellaneous aircraft engine accessories and maintenance parts; aircraft engine cooling system components; aircraft engine air and oil filters, coolers and cleaners.

San Antonio Air Materiel Area
Kelley Air Force Base
San Antonio, Texas

Airframe structural components and aircraft engine parts; aircraft engine fuel and electrical system components; electrical motors and converters; atomic ordnance (special weapons and equipment); hazard detecting instruments and apparatus; aircraft electric lights and fixtures.

Warner Robins Air Materiel Area
Robins Air Force Base
Macon, Ga.

Airframe structural components; guided missile components support; aircraft launching landing and ground handling equipment; weapons (guns, chemical and biological); aircraft fire control systems and component spare parts; bearings; metal working machinery and wood-working machinery and equipment; aircraft, motor vehicle and weapon maintenance and repair shop equipment; non-aircraft tires and tubes; non-aircraft gas turbine and jet engines; rescue and safety equipment.

San Bernardino Air Materiel Area
Norton Air Force Base, Calif.

Airframe structural components and guided missile components support.

ARMED FORCES MANAGEMENT

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**Air Force
"Sunday
Punch"**

ATLAS



Boosted into space by the fiery thrust of three huge rocket engines, the seven-story Atlas intercontinental ballistic missile roars upward from its Cape Canaveral launching pad. Quickly it sheds the frost encrusting the liquid oxygen tank and races to its predetermined destination in the far reaches of the globe. In its size and range and capability, the Air Force Atlas is a

commentary, for all the world to heed, of the necessity to maintain the peace. RCA's Missile and Surface Radar Department has been privileged to design and develop ground check-out, launch control and cabling equipment as a major subcontractor to Convair (Astronautics) Division of General Dynamics Corporation, the Atlas prime weapons systems contractor.

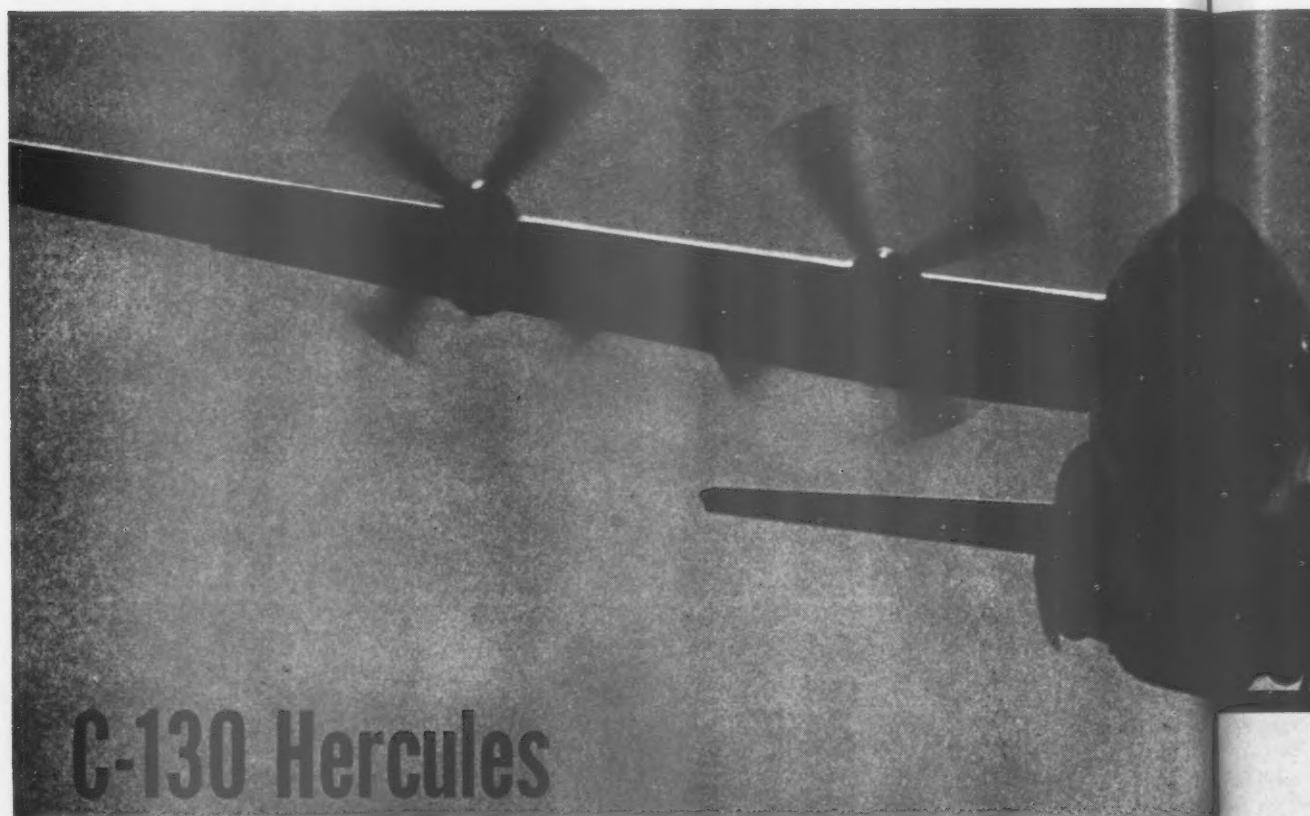


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C-130 Hercules

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92 battle-ready troops can be flown in the C-130 HERCULES from U.S. bases to any trouble spot on earth—all the way, with no change of planes—in 24 hours or less.

Powered by 4 Allison Prop-jets, the HERCULES can land on or take off from short, rough fields, sand, snow and ice—a capability demonstrated dramatically in 2 years of world-wide USAF service.

Designed specifically for transport of troops, supplies, and supporting equipment, the C-130's crew and cargo compartments are air-conditioned and fully pressurized.

20 tons of pallet-loaded cargo can be winched in or out of the HERCULES in *only 40 seconds*—cutting normal loading/unloading time from 3 hours to 15 minutes or less.

The HERCULES' huge hydraulically-controlled 9-foot by 10-foot aft cargo door and mammoth cargo capacity will accommodate big missiles and ground support equipment.

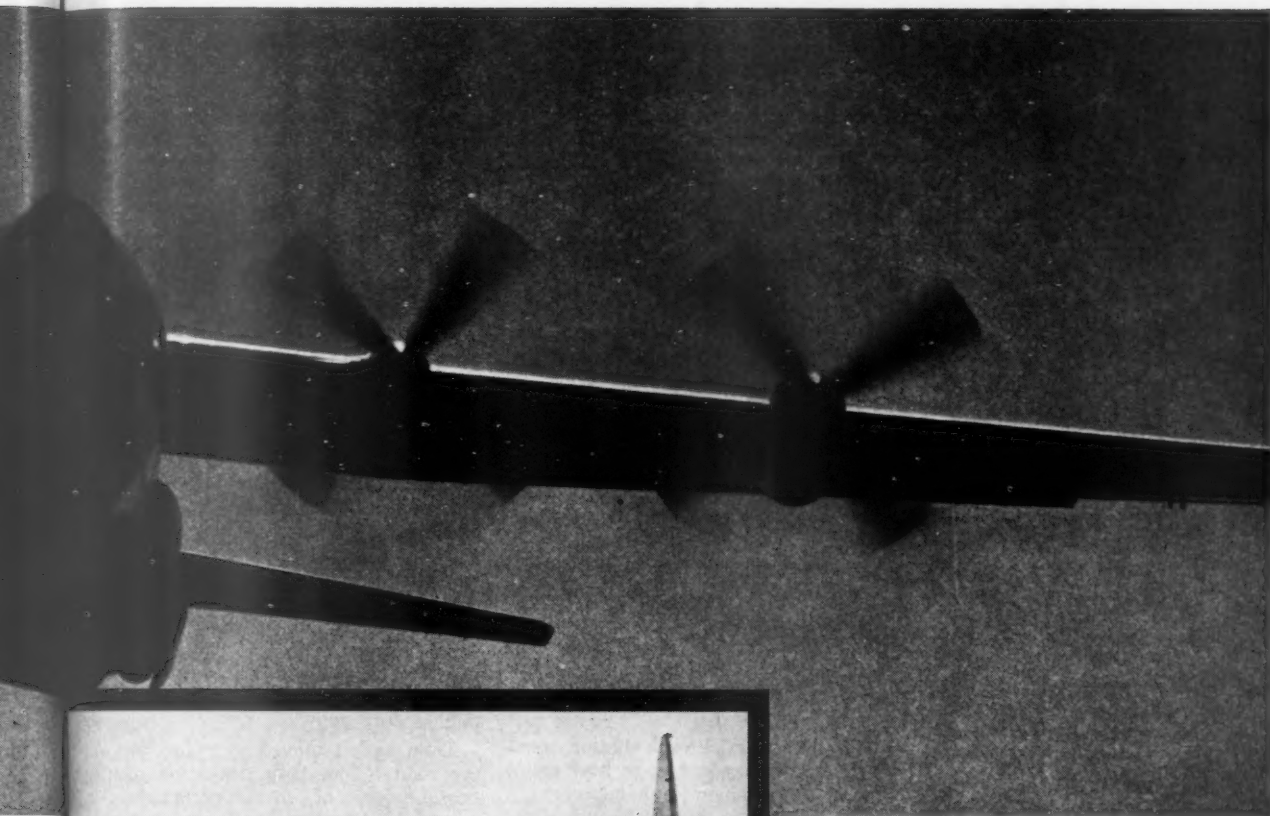
62-tons big, 6-miles-a-minute fast, the HERCULES cruises at altitudes above the weather to deliver cargo or troops to airheads over 3400 nautical miles away.

Recent events of world-wide importance have emphasized the unmatched strategic airlift capability of the Lockheed C-130 HERCULES. No other aircraft can do so many personnel/cargo hauling jobs so well, so fast, so economically. Now being produced in the world's largest aircraft plant under one roof, the HERCULES can readily be manufactured in accelerated quantities to meet the needs of our Armed Forces and give U.S. taxpayers more airlift per dollar.

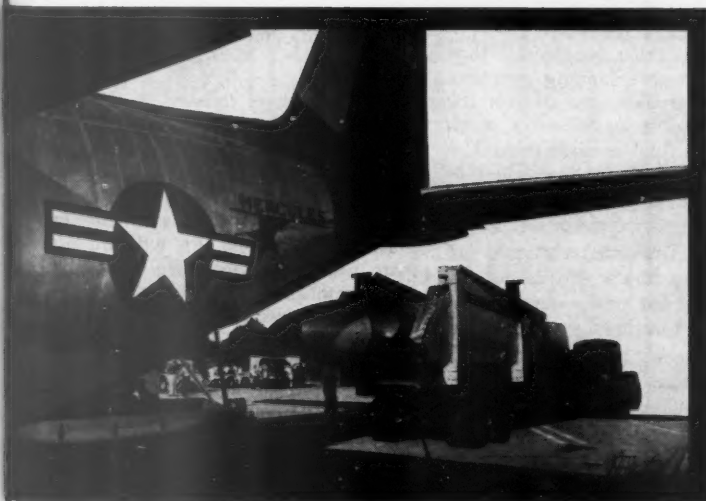
LOCKHEED *means leadership*

Lockheed Aircraft Corporation, GEORGIA DIVISION, Marietta, Georgia

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AIRCRAFT MODERNIZATION/MODIFICATION • GROUND HANDLING EQUIPMENT • MISSILE SUPPORT EQUIPMENT



During 11 days of the Middle East crisis 100 C-130s were the backbone of a 200-plane aerial armada that transported over 5,000 troops and 8 million pounds of cargo to the trouble zone.



The C-130 HERCULES can carry 90% of all known missiles in operational use today. It flies missile cargoes, support equipment, and personnel 3,400 nautical miles non-stop to launching sites.



Filling The Gap In Defense Supply Operations

Here is a rundown

on one of Defense

Department's first big steps

in greater integration of supply

by Bill Borklund

ON July 14, last year, Director Herman C. Hangen walked into room 2002 in Temporary Building X (some 19 blocks East of Capitol Hill) and began implementing the provisions of Defense Department directive 5154.14. Its subject: establishment of the Armed Forces Supply Support Center.

Result of a lengthy study (during which they quizzed 829 Service officials, visited 80 Defense inventory control, procurement and distribution activities) by survey teams from the office of the Assistant Secretary of Defense for Supply and Logistics, the Center's job will be to fill a gap in Defense supply operations. The gap, according to this ASD (S&L) Logistics Systems Study Project: "no central group devotes itself primarily to ferreting out problems in interservice supply operations and identifying opportunities for economy through improved coordination or integration."

As a key part of the improvement program recommended by the study group, the AFSSC "principal mission is to effect optimum integration in the management of common supply." Their job will not be easy.

The cross-service exchange of assets is directly dependent upon how many items are common and interchangeable. While the regular standardization program should achieve eventually the full standardization potential, the ASD (S&L) study group discovered that interservicing and consolidated procurement opportunities are being sacrificed today due to readily correctible errors in cataloging and minor differences among items which would otherwise be common.

A top priority project will be to screen and purify the 3.3 million items in the Federal Supply Catalog. The project will take approximately three years to complete. (Right now, of the items listed in the FSC, only 14 percent—447,500 parts—are actually identical in two or more Services.)

Among the other problems they face: requirements planning practices of the three Services vary all over the ball park. Lead times differ as much as five months for the same item. The responsibility of a Single Manager procurement office to check "retail" stock levels is not a generally, nor uniformly, accepted fact. Uniform techniques are needed to coordinate distribution of common items not under single manager control. Incomplete standardization and cataloging programs are holding up approaches to integrated supply management. There is reason to believe organizational separation of procurement and inventory control responsibility is preventing a "best-pos-

sible" interservice re-distribution of assets.

In addition, there are special problems uncovered by the study group. Example: petroleum transportation costs run \$100 million a year, could be cut sharply if interservice distribution were better coordinated.

Over a year ago, Assistant Secretary of Defense E. Perkins McGuire (for S&L) set up the Logistics Systems Study project, broke it down into four phases. Phase I, completed in February, was a study of the Fourth Service of Supply in all its ramifications—and AFSSC is the result.*

Why AFSSC?

Critics of the Defense logistics setup, such as Congress and the Hoover Commission, have contended loudly and for some time that there is an inadequate interservice integration in computing requirements, using assets, use of facilities, and too many different people managing the same item of supply. Just how right are they? ASD (S&L) Phase I study group was told to find out.

They hadn't moved very far down the road before they discovered that consolidation of inventory management, procurement and distribution functions among the military services is, at best, feasible for only about half the items in the military supply systems—and probably no more than 25 percent if combat-type items are excluded.

Putting first things first, the study group set as its goal not proving or disproving the value of a Fourth Service of Supply but rather how to increase military readiness and, at the same time, achieve supply economies.

Analysis of the interviews and visits revealed they could reach the goal by "more efficient interservice utilization of assets; increasing the degree of commonality of items; obtaining greater

**Phase II, nearly finished, is covering the effectiveness of MATS, MSTS and MTMA operations. Phase III will analyze departmental systems for management of technical items peculiar to military operations of each Service; Phase IV will come up with an ultimate plan for military logistics organization, outline steps to reach this goal over a long interval, possibly as much as five years. AFSSC is result of report findings and separate short-range plan of action for Phase I. (Phases III and IV of the LSS project have been postponed indefinitely pending the implementation of the DOD Reorganization Act of 1958.)*

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consistency of practices in such matters as requirements planning factors and cycles, stock levels, and distribution patterns; and achieving closer working relationships among the organizational elements concerned with the management of common supply, i.e., inventory control, procurement, distribution, and standardization."

How to do the Job

The study group saw three possibilities for doing the job. They were:

1

Give it to ASD (S&L). They ruled this one out because it would divert attention from the office's main role as policy setters, involve the office too much in day-to-day operations.

2

Assign responsibility for common supply management to one military department. Disadvantage: the operating agency, as a subordinate entity of a military department, would have a hard time moving freely among the four Services (seeking grounds for proposing common standards) since it would be suspected of wishing to impose its own standards and procedures on others. The group also thought a single military department would be open too much to accusations of giving

first preference to its own needs and interests. Still, they felt it would be a better solution than the first idea.

3

Best solution, said the group, would be to establish a separate agency—providing the agency can be kept responsive to the military needs of the Services. (This had already proved an acceptable device in the field of common supply by experience in the last two years of the Interservice Support Committee—even though the committee had no permanent staff, no direct line of support to any specific organization.)

Having decided this, they bumped immediately into another problem. What should the new agency's scope of responsibility be and how much authority should it carry? The most successful form for the agency, they decided, should be supply support in contrast to supply operations. Before reaching this conclusion, however, they investigated all the ramifications of the Fourth Department of Supply and the Defense Supply and Service Administration (Hoover Commission proposal). This is what they learned:

The concept appears to spring from unification ideas discussed during World War II. However, the record does not reveal a precise or complete

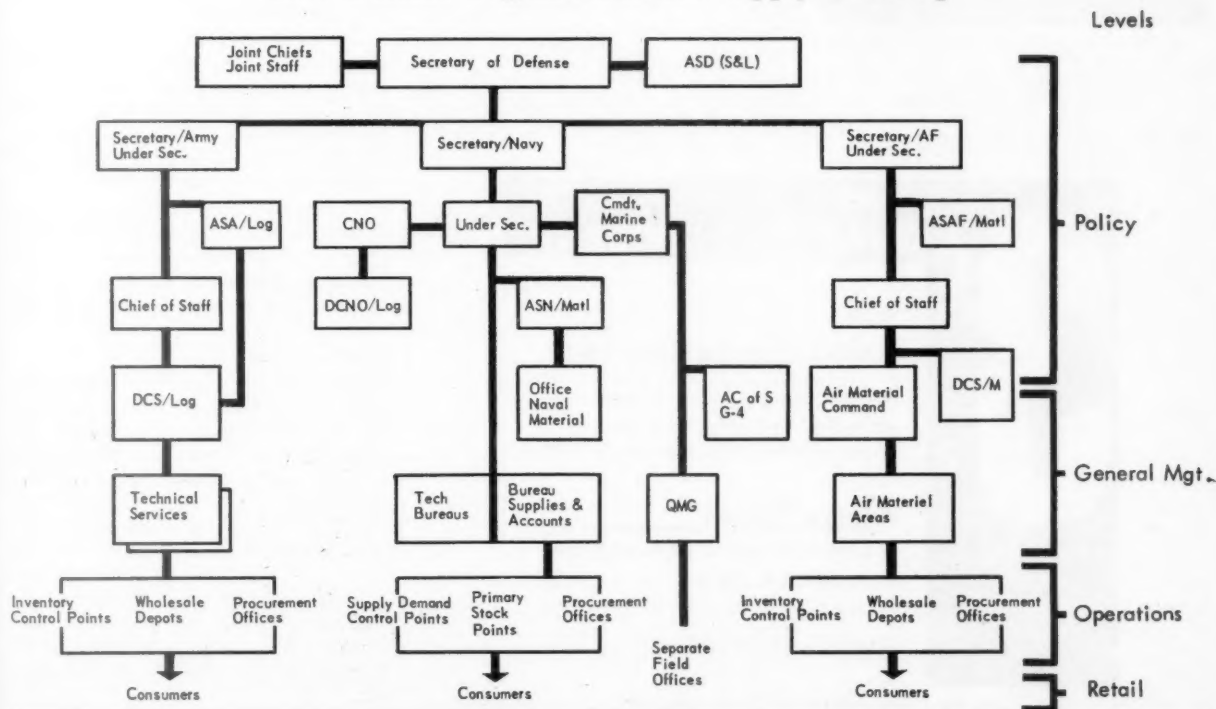
plan which defines items, functions, and procedures. The attempt to analyze the concept proceeded on assumptions. The key assumptions included: Department would have co-equal status with military departments, be headed by a policy-making Secretary of Supply, manage all items with any degree of common usage (50% of the supply system), operate its own depot system in the continental U.S.

Arguments against: such a department could be created only as a part of a total defense reorganization. The study group could find no problems of such magnitude that it was necessary to resort to a major reorganization to improve common supply integration.

There were strong doubts voiced as to whether common supply warrants a voice in policy management co-equal with departments responsible for planning and conduct of military missions. The group also doubted if current operating decisions on supply matters could be made independently without diminishing the authority and capability of those responsible for military program management; nor did they think it was justifiable to set up separate supply operations for common items while the military continued to operate systems for peculiar and weapons-of-war materials.

Conclusion: solutions to the prob-

How Defense Organization for Supply is Set Up



lems identified can be had more simply, cheaply, quickly and with less disruption to the overall organization than would result from setting up a complete fourth department.

Based on an analysis of the Hoover Commission proposal, the DSSA would handle about 20% of the items in the military supply line, eventually be manned entirely by civilians. In addition

to arguments against a fourth service, survey teams could find no evidence for the belief that improved effectiveness would result from divorcing present Single Manager assignments from military department administration—but such a separate operating agency would increase DOD annual overhead by about \$6 million.

How AFSSC Works

Consequently the study team backed what is now the AFSSC. A common supply support agency, it leaves supply operating assignments under military service but will centralize all supply support activities including cataloging, standardization, material utilization. In addition, the full-time professional staff will perform, on a continuing basis, studies like those of the Phase I survey teams which recommended its creation. In actual performance, ASD (S&L) believes it will facilitate integration of a greater number of items and functions than would be possible under the Hoover concept.

Hangen's staff personnel were picked for their supply management experience; a demonstrated ability, objectivity, and understanding of military missions. Topped by an AFSS Council (which includes Deputy ASD (S&L) C. P. Milne, chairman; Army Maj. Gen. R. W. Colglazier, Jr.; Navy Rear Adm. J. W. Boundy; Marine Corps Brig. Gen. C. R. Allen; and Air Force Major General M. E. Bradley, Jr.; as well as Hangen and his AFSSC deputy director, Brig. Gen. I. L. Allen, USA), the AFSSC reports to ASD (S&L) has three major divisions:

Cataloging: which will develop recommended policies, plans, and programs for the establishment, maintenance, conversion to, and utilization

of the Federal Catalog System and insure effective use of the catalog data within the military supply systems;

Standardization: which will administer the Defense Standardization Program including recommending assignment of responsibility for portions of the program among the military departments, setting up an annual timetable for completion of various phases of the standardization effort;

Utilization: which will be responsible for programs for maximum utilization of personal property among the services, is authorized to deviate from screening provisions of DOD directives when necessary to handle emergency action with respect to excess property.

AFSSC also has set up an analysis staff to carry out specific study projects on the operations of military supply systems concerned with commercial and noncommercial* common items of materiel "to obtain optimum integration in the interest of increased military effectiveness and economy."

Personnel allocation for the center is 446 bodies, 14 of them military (of which 8 will be on the analysis staff, 5 in the utilization division).

The Future

Will the Agency reduce administrative burden of the military services? It should, because it will have full responsibility for conducting staff analyses of interdepartmental operating problems which are either neglected today or handled by ad hoc groups on a part-time basis.

"Removal of obstacles to practical interservicing of assets will facilitate the accomplishment of military missions," say the Center's backers; and an "in-the-know staff" will avoid unreasonable or unrealistic requests on departments for data.

"Support gradually will grow," thinks Hangen, as more common supply functions are monitored, the Services have a definite, permanent group to turn to in search of uniform policy and procedures.

**For terms of reference, commercial items of material are those required by the military services which are generally used throughout the civilian economy and available through normal commercial distribution channels ("off-the-shelf" items); non-commercial common items are those required by two or more of the Services which are not generally used by the civilian economy, still are of similar manufacture or fabrication but may vary among the Services as to color, finish, marking, etc.*

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Why an A-plane

Crash Program Won't Work

by Fred Hamlin



ALL that this country's nuclear airplane program needs is more active backing and a power plant.

What is needed for the engine: between three and four years, with a spending level of about \$250 million a year. This, according to top Air Force sources, will build the engines and airframes to put two prototype aircraft into the air under nuclear power. Past spending on the A-plane program has averaged roughly \$150 million yearly, with a total investment approaching \$850 million.

The Russians—in spite of skeptically greeted reports to the contrary—will not have a nuclear plane in the air until about this time next year, but they will undoubtedly be the first to fly an A-plane.

The reason: It will be between three and four years until the U.S. has a nuclear engine that is ready to go. Although the Air Force has tested its nuclear turbojet on the ground, it has not yet begun to do anything in the way of flight testing. The one exception is a series of radiation/shielding tests that have been run with an airborne reactor in a B-36.

By the time the nuclear engine is ready, the Air Force will have an airframe ready to go. General specifications for this plane have already been drawn up. What the Air Force wants: a mach .9 aircraft, capable of cruising up to five days at altitudes to 40,000 ft. The A-plane will be powered by two turbojet engines, mounted close inboard and powered by a single nuclear reactor.

For this—or for any other flying nuclear plane—they will have to wait. There are no major problems to be solved. Says an informed Air Force source, "We have a damn good handle on all our 'problems.' From here on in, it's just engineering and testing." Contract on the A-plane's airframe is still in the competition stage, with Lockheed and Convair as leading contenders. But there will be no atomic engine to put in the aircraft for the next couple of years.

While this plane will be only a prototype, Air Force has definite plans for using an A-plane, once they have it. Primarily, it will be used as "an atmospheric extension of the Polaris Fleet Ballistic Missile system." The airborne missile platform would complement, rather than replace or detract from, the Navy system. Air Force also sees a definite use for the plane in limited war situations. It could be used to hover over battle areas, working with U.S. ground forces, firing low yield atomic rockets or lay-down atomic weapons. Finally, such a plane could be used to plug the gaps in the Ballistic Missile Early Warning System (BMEWS).

Air Force maintains, contrary to the Navy, that there is no need for a test bed phase of development, in which the power plant would be used to propel an existing airframe (most likely prospect, if there were such plans, would be the British flying boat, Princess).

While Navy's argument for a test

bed is summed up by saying "you have to crawl before you can walk," Air Force points out that they have been "crawling" to the tune of \$750 million on drawing boards and in component testing. Navy has not spent anywhere close to this much money (current figure: roughly \$35 million). In some quarters, it is felt this is why Navy is pushing a test bed phase, reasoning that the Navy doesn't really know where they want to go with an A-plane.

Navy is currently backing a sea-based turboprop version of a nuclear plane. Air Force points out that the main advantage of the nuclear aircraft is that of range and endurance. To fly this kind of mission will dictate reliability practically unheard of in the past. Because it must turn a propeller, the turboprop engine is that much more complex and unreliable. Air Force has had trouble with the jetprop engines it already has, and is more than happy to use the straight jet for the atom plane.

A major advantage of the nuclear aircraft is the variety of uses to which it can be put. Says a top Air Force source, "We just don't expect an obsolescence problem with the nuclear plane, once we have it. As our specifications stand, the plane is primarily a carrier type of aircraft. It will carry enough of a payload to insure a long, long life. If better reactor systems or materials are designed, they can be incorporated in our plane. If a better turbojet engine is built, it can be

coupled with the reactor we have built into our plans."

While the Navy would compare the switch-over to nuclear propulsion with the revolution to jets from reciprocating power, the Air Force discounts the idea. "A turbojet engine is a turbojet engine. What we are doing is about the same as the difference between flying a jet engine with JP-4 or JP-6 fuel."

Another argument for the Navy sea-plane program is that of safety. It is no secret that there is considerable radiation hazard from the type of reactor that will be used in the A-plane. Navy claims that their test-bed program, using the British Princess, will offer the added safety of water operation, until more is known about handling nuclear power. Because water is an excellent natural radiation shield, and because the power system will be extremely heavy, any accidents will virtually take care of themselves.

Countering this, Air Force says it will maintain the most stringent safety rules. For example, if the plane is flown from an inland base, it will fly over land on chemical power, and will not turn on its reactor until it is over water. Also, Air Force is taking proximity of water into consideration in picking its A-plane bases. Obviously, the plane would only operate over areas of extremely sparse population.

As far as the Air Force is concerned, shielding, and resulting weight penalties, are no problem. They are a fact of life. Top sources say that there is absolutely no foreseeable relief from this problem. "There is no way but mass to kill radiation. An ordinary plane must take off with a much heavier fuel weight than when it lands. Of course, the A-plane won't. If we can save something on our takeoff weights, it could do much to counteract our shielding/weight problem."

Air Force stresses that they are not attempting, or even thinking about building a complete weapons system from scratch. What they are putting together is a prototype. It will be a less-than-immediately-useful plane, but it will be one that is readily adaptable to military operations.

A major problem facing the United States' nuclear aircraft development program would appear to be erratic backing. The government—particularly the Executive branch—has made a fairly steady practice of slowing up, and/or shooting down the whole idea.

This recalcitrant attitude is neatly stated in a quote from former Defense Secretary Charles Wilson. His remarks were made in 1953, in connection with a budgetary decision he had made which came uncomfortably close to stopping the A-plane program in its

tracks. Said Wilson: "The atomic-powered aircraft reminds me of a shite-poke—a great big bird that flies over the marshes, you know, that doesn't have much body or speed to it, or anything, but can fly."

To say that there is no use for a nuclear powered plane is to immediately discount the Air Force argument for a cruising missile platform—and to discount this is tantamount to admitting that the entire Polaris missile program has been a waste of time and money.

It is also to deny Navy's request for a long-range, high-endurance aircraft to be used in Anti-Submarine Warfare and Airborne Early Warning work. It also denies the use of this plane in a limited war situation. In short, by so easily writing off the nuclear aircraft program, Secretary Wilson would appear not to know what plans had been made for such an aircraft.

After being shot down by Wilson, the program was saved by last minute hustling on the part of the Joint Atomic Energy Committee. In 1956, the Air Force picked up the ball, and began to run. But technical difficulties obscured a completion date, and because of the program's general vagueness, A-plane funds began to dwindle.

In 1957, spending picked up again, and continued at a fairly even level until this year. A sharp blow was dealt this spring when President Eisenhower vetoed emergency A-plane funds, saying that there was "no urgency." The President would do well to heed a comment by J. Carlton Ward, Jr., president of the Vitro Corp. of America, and former head of the original A-plane program in 1946. His comment: "We could have had an atomic plane by 1952 if we had gone ahead with the program."

The President has maintained a fairly consistent approach to the problem, and one which seems to be dictated by the state-of-the-art. His contention is that there is no point in rushing into the air with a "shite-poke" airplane. Because the country doesn't seem to be in a position to do this, the contention is hard to shake. What the President is saying is that as long as we have to wait for an engine, we might as well try to do the whole show at once. This is clearly underlined in his March, 1958 letter to Rep. Melvin Price (D-Ill.):

"My conviction is that our need for the development of the high-priority military aircraft overrides the 'first nuclear flight' objective. Accordingly, I have decided that we should continue to go forward as rapidly as we effectively can with our development program, which at this stage places major

emphasis on materials and reactor research, rather than to rush development of a first nuclear flight aircraft which would have little or no practical utility and would delay achievement of an effective military aircraft."

In a late December press conference, the President had this to say: "There is no usefulness that anyone could possibly see for such a plane [the nuclear testbed], and, therefore, our own research efforts have been developed toward the production of an airplane that will have satisfactory performance characteristics either for some peaceful or military purpose, but we do not abandon the basic research on the power plant . . . which is the basis of the whole thing. And we just merely say that there is no use of going into a field where the whole purpose would be to get a plane a few hundred feet off the ground."

It is not the fault of Congress that the U.S. is behind. Funds were voted, and then vetoed early this year that would have gone to A-plane development. By and large, Congress has shown interest and active support where this project is concerned. But Defense Secretary McElroy has said, in the face of Soviet success rumors, that "we do not contemplate any change in our program at this time." Perhaps a change isn't needed in the program itself. But the A-plane development program must be given much more active support than it has received in the past.

It has been suggested that what the program needs is another Rickover type, who will plain and simple ramrod it through. Because of the unique requirements that must be met, patience is probably closer to the point.

The truth of the matter would seem to be that the U.S. has lost the A-plane race by a margin even wider than was the case with Sputnik. All of the fly-early plans are predicated on an engine—and from all indications, this country doesn't have an engine ready to go, and won't for the next three or four years. With this in mind, it makes no difference whether we fly a test bed or a prototype aircraft designed to mate with the nuclear engine—it is still going to be at least three years before we get a plane off the ground.

A U.S. A-plane, carrying nuclear-tipped missiles, used with the B-70, B-58, Minute Man and Polaris systems, is going to form a retaliatory power that will virtually rule out a surprise attack against this country. The program is one of vital importance. It will do no good to put the A-plane program on a fly-first crash basis—but it will do even less good to fail to give it the money and support it deserves.

ARMED FORCES MANAGEMENT

Personnel Preview

Ship Cost Study Panel Established by BuShips

New methods to obtain economies in ship construction, repairs and conversions will be the aim of a recently formed Ship-Cost Analysis Panel, announced recently by BuShips Chief RAdm. A. G. Mumma. The panel will be headed by RAdm. R. K. James, Assistant BuShips Chief, for Field Activities.

In forming the group, Adm. Mumma pointed to rising price levels, increasingly costly and complex electronics systems, nuclear power work and other types of specialized equipment that have forced an urgent need for cost reductions.

Operating costs in administration, overall organization and the shipyards will get a careful screening by the group. The panel is soliciting any suggestions from field organizations which will cut Navy costs in this area without harming quality of finished products.

Air Force Announces Officer Training Plan

Exceptional and hard-to-fill specialized officer vacancies in the Air Force will be filled under a soon-to-be-announced Officer Augmentation plan. Air Force says its new Officer Training Program will begin to accept applications in April 1959.

During FY 1960, roughly 300 men will be chosen as officer trainees. The first class will start at Lackland AFB, Tex., in November, and will last for three months. Graduates will be commissioned in the Air Force Reserve.

Final selection for the program will be made by a board headed by a general officer. Candidates will be drawn either from Air Force enlisted ranks or from civilian applicants.

Nuclear Power School Is Opened by Navy

Navy has opened a Basic Nuclear Power School at Mare Island, Calif. Naval Shipyard as of December 15. An initial class of 115 students was scheduled to take the first six-month course.

Expanding Navy nuclear power programs are expected to dictate a sharp rise in enrollment in 1959. After completing the Mare Island school, graduates will be assigned to Naval Nuclear Power Training Units at

Atomic Energy Commission Test sites for practical experience. Included in the all-academic course will be such subjects as physics, fundamental reactor technology and component and system studies.

Marine Corps Adopts Unit Rotation Plan

Beginning in March 1959, infantry battalions with the Fleet Marine Force, Pacific will be rotated as units between the First Marine Division, Camp Pendleton, Calif., and the Third Marine Division, Far East.

To be used with the 15 battalions of the two divisions, the new system will apply only to infantry groups. At the present time, overseas replacements are assigned on the basis of single billet openings.

War College Chief Named by Army

Maj. Gen. William P. Ennis, Jr. has been named Commandant of the Army War College, Carlisle Barracks, Pa., as of Feb. 16, 1959. Gen. Ennis is presently Deputy Chief of Staff for

Operations and Intelligence, Allied Forces, Central Europe.

He will replace Maj. Gen. Max S. Johnson, who has held the Commandant's office since 1955. In an Air Force General Officer change, Maj. Gen. Harold H. Bassett has assumed command of the Air Weather Service, replacing Col. Norman L. Peterson, who will remain with ARS as deputy commander.

Missile Maintenance Taught With TV

Army is teaching its officers guided missile maintenance with a new closed circuit television system, manufactured by Radio Corp. of America. The system may eventually be extended throughout the country.

Heart of the system is at Army's Ordnance Guided Missile School, Redstone Arsenal, Ala. From there, the missile instruction programs are carried to Army's Armor School at Fort Knox, Ky., a distance of roughly 280 miles.

Col. H. S. Newhall began work on the program with an eye to cutting costs by eliminating costly equipment movements. At the Redstone missile school, there are 19 pickup locations, arranged to provide remote or mobile coverage of missile operations throughout the school.

Air Force to Use New In-flight Lunches

A new kind of in-flight lunch—partially precooked and wrapped in foil packs—will be in use by the Air Force within the next two months. The lunches will be phased in at all Air Force bases where long flights originate.

Called "savory and sustaining at a

savings," the foil-wrapped meals are said to be popular with airmen—more so "than anything we've tried," according to AMC officials. The lunches operate on the same theory as chilled, partially cooked rolls bought throughout the civilian economy.

The new system will offer 50 dinner and 10 breakfast menus. The meals are fully cooked in small ovens while the plane is in flight.

Maj. Gen. W. O. Senter, Air Materiel Command's Director of Procurement and Production, samples one of the new Air Force pre-cooked in-flight lunches.



How Army Handles Tri-Service Buying

Quartermaster corps is charged with Single Manager Responsibility for clothing, textiles and subsistence. This is how that branch serves all three services with maximum efficiency. . . .

by Lt. Col. William T. Bell, Jr.
Chief, Procurement Policy Branch
Office of Quartermaster General

THE Quartermaster Corps is currently assigned procurement responsibility within the Army for three major categories of supplies. These are subsistence; textiles, clothing, and equipage; and general supplies, which include materials and equipment for administrative and housekeeping purposes. Also, the Quartermaster Corps buys certain special purpose vehicles for the Army and Air Force; horses, mules and dogs; petroleum handling equipment; and headstones and markers for graves of deceased members of the Armed Services. These assignments, in most cases, carry with them responsibility for procurement for all of the Armed Forces. Subsistence, and textiles, clothing and equipage are procured under Department of Defense Single Manager assignments.

Purchases of subsistence and related supplies and services are accomplished by the Military Subsistence Supply Agency with headquarters in Chicago, Illinois, and the purchasing activities of its ten Military Subsistence Market Centers located through the United States. Clothing, textiles and equipage are purchased by the Military Clothing and Textile Supply Agency located at Philadelphia, Pennsylvania. Both of these agencies are fully integrated supply organizations with responsibility for substantially all phases of supply, from the determination of wholesale requirements to distribution for all of the Armed Forces.

Each agency is commanded by an Executive Director appointed by the Quartermaster General. The purchase of general supplies, special purpose vehicles and petroleum handling equipment is accomplished by the

Quartermaster Purchasing Agency at the Columbus General Depot, Ohio. Also, the Quartermaster General maintains purchasing activities at the Atlanta, Sharpe, and Schenectady General Depots for non-stocked Quartermaster items for Army activities located overseas and ZI Army stations.

The Quartermaster General exercises general management over all of the above purchasing activities. To provide maximum procurement flexibility, The Quartermaster General delegates maximum possible authority in procurement operational matters to field commanders. The development and control of procurement policies amplifying and implementing Defense Department and Army policies, however, is reserved to The Quartermaster General. In the Office of The Quartermaster General, the Assistant Quartermaster General for Operations has primary responsibility for overall supervision and management of the QM purchasing activities. This responsibility is exercised through specialized staff divisions, each responsible for a specific commodity, and the Operations Control Office which is responsible for multiple commodity matters.

The Assistant Quartermaster General for Operations implements procurement policies of higher authority, and develops or interprets, and disseminates procurement policies needed for efficient performance of the Quartermaster Corps procurement mission. He is the focal point within the Quartermaster Corps for matters involving overall procurement policy. Supervision and management is also exercised through reports submitted by field purchasing activities, through staff

visits to these activities, and through budget coordination for operation of field purchasing offices.

The Assistant Quartermaster General for Operations is also responsible for preparing and disseminating policies and procedures relative to acceptance inspection and quality control, and for establishing methods for using statistical quality control procedures. Controls in this area are exercised by continuously evaluating policy and procedure implementation with field inspection teams, and by technically supervising field inspection organizations commanded by the two Executive Directors and the Commanding General, Columbus General Depot.

The Assistant Quartermaster General for Operations is responsible for policy relating to industrial mobilization planning for wartime procurement and for technical supervision of industrial mobilization field offices.

In the area of General Supplies, the Quartermaster Corps is the central point in the Army for supply of common use items such as housekeeping equipment, paper and paper products, and similar supplies. QMC is responsible for buying many of these supplies for all of the armed forces under single service purchase assignments. Buying these items is the responsibility of the Quartermaster Purchasing Agency at Columbus General Depot. This Agency also purchases certain special purpose vehicles and petroleum handling equipment.

The Quartermaster Corps has a long clothing and textile procurement history in the Armies of the United States. During the Civil War, Quartermaster Depots at Philadelphia, Pennsylvania, and St. Louis, Missouri, bought these items. During World Wars I and II, the Philadelphia Quartermaster Depot was the central procurement point for clothing and textiles. After World War II, these activities were transferred to New York, and during 1952 and 1953 were under a Joint Armed Forces Procurement Agency. The Army functions were subsequently returned to The Quartermaster General and transferred to the Philadelphia Quartermaster Depot in 1954.

The Depot clothing and textile procurement functions were absorbed by the Military Clothing and Textile Supply Agency, organized in July 1956 as the Single Manager Operating agency. This agency now provides clothing and textile materials items for all of the Armed Forces of the United States. Purchases through this agency average approximately \$200 million per year. Clothing and textile buying

is normally accomplished by formal advertising.

The most widespread Quartermaster purchasing activity is under the Military Subsistence Supply Agency and its 10 Military Subsistence Market Centers. The Military Subsistence Supply Agency (MSSA) is the subsistence link between national food resources and the military consumer, MSSA was established in 1956, under a Single Manager Assignment, and is an expanded continuation of the Quartermaster Market Center System, which was the single U.S. agency for procuring wholesale food needs of the Military Services.

The Quartermaster Market Center System was formed in 1941 as an emergency measure to purchase perishable subsistence for the Army and the Air Force. Successful from the start, the new organization was quickly expanded to include the supply of perishable subsistence to all of the Military Services.

This system was established and operated on the premise that commercial food buying practices could be advantageously applied to the supply of food to the Armed Forces. Quartermaster Market Center System consisted of a peak wartime organization of 36 Market Centers and 11 field offices, supplying approximately \$3½ billion of perishable foods to domestic and overseas military installations. The success of the Market Center was recognized in 1947 when single service procurement responsibility for subsistence was delegated to Army by Congressional Act.

This authority was in turn delegated to the Quartermaster Corps. For a time, subsistence purchasing continued under a split operation—one organization responsible for perishables, and

one for non-perishables. In 1953 the QM Market Center System was made responsible for all subsistence purchases. The ten Market Centers, located in strategic relation to food producing areas, troop concentrations and export transit ports, are a complex and closely interrelated system.

Located even closer to the source of supply and demand are 13 permanent field buying offices which supplement the purchasing responsibilities of the Market Centers. Also, temporary field buying offices, seasonally activated in fresh fruit and vegetable packing areas, permit Market Center buyers to move with the harvest and take on-the-spot advantage of quality and quantity conditions. The current magnitude of the Military Subsistence Supply Agency operation is shown by the annual average procurement of 3¼ billion pounds of food costing roughly \$750 million.

While packaging and packing may differ from the commercial product, MSSA buys items largely without military characteristics. Since many items purchased are perishable and seasonal, timing is often of the utmost importance. Most items are available in widespread areas. With some exceptions, the food items bought are the same as those in any grocery store. The Military Subsistence Supply Agency, operating under the Armed Services Procurement Regulations, the Army Procurement Procedure, and procurement instructions issued by the Quartermaster General, purchases on a negotiation basis. This contrasts with formal advertising methods used by the other QMC procurement agencies.

In the market center system, this method is generally called Informal Competitive Bidding. This method of procurement is implemented as fol-

lows: Notice of Intent to Purchase, (NIP), which lists the items and all pertinent data (quantities required, delivery dates etc.) is sent to all qualified supply sources that have indicated an interest in bidding on military requirements. The supplier makes his offer to the nearest Market Center, or to the Market Center specified in the NIP, by letter, telephone, or telegraph. Upon receipt, details concerning the offer are recorded and compared to determine which offer or combination of offers gives best value to the Government. When carlot or trucklot quantities of perishable subsistence are involved, bids representing the best value at each Market Center are teletyped to a Control Market Center where the best nationwide value is determined. Instructions are then issued to the appropriate Market Center to award and administer the contract. Contracts are generally administered at the Market Center closest to the contractor, promoting maximum liaison between buyer and seller. Less than carlot or trucklot requirements are normally procured by individual Market Centers.

This typical NIP procedure is varied for field buying of fresh fruits and vegetables and where the supply of an item originates in a single Market Center area. That Market Center then acts as central purchasing office, under the direction of the headquarters at Chicago. With fresh fruits and vegetables, buyers visit the growing area for carlot requirements, or terminal markets for less-than-carlot quantities. This system is substantially the same as the one used by large food market chains. Produce is purchased in the market place and delivered to the user in the shortest possible time.

Inspection activities to support purchasing are conducted by each of the three central procurement agencies. The Executive Directors for the Military Subsistence Supply Agency and the Military Clothing and Textile Supply Agency, and the Commanding General, Columbus General Depot, through their inspection organizations, direct and control inspection and testing of supplies over which each has cognizance. The individual inspection organizations assure that contractors' products conform to all quality requirements. Inspection activities work closely with purchasing activities and individual inspectors act as the contracting officer's representative in certain procurement matters. The General Supplies Inspection Agency located at the Columbus General Depot, in addition to other duties, furnishes inspection support to regional procurement offices at the Atlanta, Schenectady, and Sharpe General Depots.



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Army's Buying System: What it Does

Organization is the key to handling the huge and varied Army Procurement mission. This is how the system works.

by Colonel E. J. Gibson
Chief, Procurement Division
Office of the Deputy Chief of
Staff for Logistics
Department of the Army

THE term "Army Procurement" is subject to various interpretations. In this broad sense it includes determining when to place contracts for items; what delivery schedules are necessary; the solicitation of bids or negotiation of contracts; the placement of contracts; the furnishing of tools and facilities if necessary; inspection and quality control; packaging and packing; contract modifications and price adjustments; maintenance of tools and facilities; production engineering; industrial mobilization planning, etc.

The cost of a single procurement can also vary from a few cents to a half a billion dollars. The whole field of Army Procurement would comprise several books.

The Secretary of the Army, Wilber M. Brucker, is responsible for the overall assigned role and mission of the Army in the protection of the national security. He looks to the Assistant Secretary for Logistics, Honorable Frank H. Higgins, for advice concerning the supply management of the Army and has assigned to him the direction of the Department's activities in the logistics area.

The military operation of the supply management function is the responsibility of the Deputy Chief of Staff for Logistics, Lt. General C. B. Magruder, in consonance with the policies of the Secretary of Defense and the Secretary of the Army. The Deputy Chief of Staff for Logistics has full management authority not only over the Army's logistic supply functions but also has full authority for the provision, administration and control of military and civilian personnel and funds for the Technical Services. This authority applies to the procurement function (with which we are here concerned) as well as all the other areas involved in supply management. The Office of the Deputy Chief of Staff for Logistics is organized on a functional basis.

Staff supervision of the procurement

aspects of supply management in the Office of the Deputy Chief of Staff for Logistics is in the hands of the Director of Procurement, Brigadier General Jean E. Engler, and carried out under his direction by the Procurement Division. The function is divided into its several components: programming and budgeting; contracts awards and administration; standardization and quality assurance; industrial mobilization and facilities planning; and small business activities.

While consolidation of command of the Technical Services has placed the direction of their supply management functions in the DCSLOG, the traditional commodity specialization of the Technical Services has been continued. This is in line with one of the conclusions of the Davies Committee, which studied the Army's organization in 1953: "Coordination of the development, procurement and distribution of an item is a more meaningful basis for organization than specialization in each function."

Thus the Chiefs of Technical Services are responsible for research, development, procurement, production, storage and issue of assigned items, rather than having separate organizations responsible for all research and development, all procurement and production, all storage and issue of Army materiel.

In addition to the principle of organization based on commodity specialization below the top level, the Army's procurement organization is founded also on the principle of de-

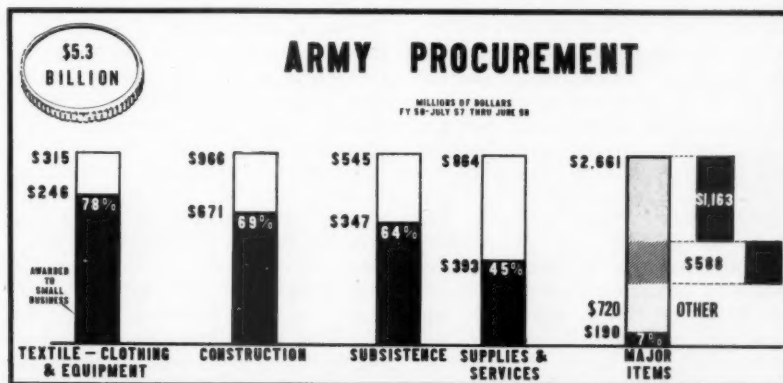
centralization of authority and responsibility. Purchases are not made at the Headquarters of the Department of the Army in Washington but rather by major purchasing offices all over the world.

In the United States, these central purchasing offices have been established in locations which are convenient to the industries with which they deal. Posts, camps and stations also buy many products and services needed by them which are more economically purchased locally than through nationwide central procurement.

Small business suppliers make major contributions in several fields. The Army's procurement organization includes small business specialists at every echelon to insure that the Army complies with the Congressional mandate that a fair share of its business is done with small business concerns.

The Ordnance Corps is responsible for the largest part of the Army's procurement operations, having placed \$2 billion of the \$5.3 billion in contracts awarded by the Department of the Army in FY 1958. This is understandable because the Ordnance Corps is responsible for such expensive complex items as missiles, tanks, and heavy weapons. Ordnance also buys fire control systems, special purpose and combat vehicles, ammunition and small arms.

The Quartermaster Corps has a supply responsibility covering the needs and welfare of the individual soldier and the administrative needs of the



Army. Clothing and subsistence are handled by single managers (a single manager is responsible for the procurement and wholesale distribution of the items assigned to him for all of the military departments) in Philadelphia and Chicago under the jurisdiction of the Quartermaster General. In addition, the Quartermaster Corps buys general supplies, petroleum products, and laundry, kitchen, materials-handling and administrative equipment.

The Corps of Engineers furnishes a construction service necessary to sustained combat on land. Engineer construction units and combat units of various types are the principal users of Engineer supplies and equipment procured by the Corps of Engineers, among which are construction materials and supplies, bridge equipment and fortification materials.

The Corps also buys petroleum distribution equipment, such as pipelines and large storage tanks, fixed refrigeration and air-conditioning equipment, surveying equipment, maps and map reproduction equipment, water purification and distillation equipment and camouflage materials. It also leases land and facilities needed by the Army, leases Government owned facilities to private industry, and places construction and utility contracts. The Chief of Engineers is also responsible for the Civil Works Program of the Army which includes flood control, dredging of rivers and harbors, etc. By law, he reports directly to the Secretary of the Army on his activities in this area.

The Signal Corps' essential logistic function is to furnish communications. Signal Corps' combat elements and field activities consume a major portion of the items for which Signal has supply responsibility. Signal Corps procures radio, radar, telephone and telegraphic communications, and detection equipment, fixed radio, telephone and telegraphic communications systems, meteorological equipment and supplies, photographic equipment and supplies and automatic data processing equipment. The Chief Signal Officer also places contracts for the leasing of privately owned communications facilities.

The Transportation Corps provides transportation services in support of technical or logistical operations, including water, railway and highway transportation, operates port facilities and terminals, and is responsible for Army aircraft maintenance and supervision of motor vehicle operations. The Corps is responsible for procurement of Army aircraft and allied equipment (which at present is done through the Air Force or Navy), marine floating equipment, military rail equipment and certain cargo-handling and petroleum-handling equipment. It also places con-

tracts for the furnishing of transportation services to the Army.

The Army Medical Service, under the Surgeon General, provides care for the sick and the wounded and is responsible for medical supplies within the Army. The Military Medical Supply Agency, a single managership under the Department of the Navy, handles procurement and wholesale stockage of medical supplies. For that reason, the procurement functions of the Army Medical Service are relatively slight.

The Chemical Corps is in some respects the most highly specialized of the seven Technical Services and in many ways quite unique. Over 90% of the items procured and supplied by the Chemical Corps are military, consisting of chemical, biological and other highly specialized weapons and ammunition, including flamethrowers, toxic bombs and shells and protective devices against chemical weapons.

Procurement as one of the larger elements of the supply management function of the Army uses the specialized talents of the seven Technical Services. The policies for its operation are found to a large extent in the Armed Services Procurement Regulation published by the Office of the Secretary of Defense and in the Army Procurement Procedure published by the Department of the Army.

The Department of the Army participates in the formulation of DOD procurement policies and procedures by participation of the Assistant Secretary of the Army (Logistics) in deliberations of the Materiel Secretaries of the Military Departments; and through Army representation on the Armed Services Procurement Regulation Committee, which commits such policies and procedures to writing in the Regulation. Procurement Division, Office of the Deputy Chief of Staff for Logistics, prepares and publishes the Army Procurement Procedure which amplifies and implements the Regulation; and also reviews the operating instructions issued by the Technical Services.

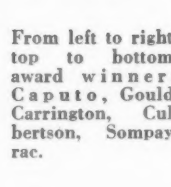
The structure of the Army's procurement organization is under continued study under the leadership of the Assistant Secretary of the Army (Logistics) and the Deputy Chief of Staff for Logistics. Improvements are constantly being made for reasons of economy and more efficient operations. Shifting emphasis may make a purchasing office unnecessary in one location, or require the expansion of another office at some other location. The increasing use of the inspection organization of one Technical Service by others permits elimination of duplicating functions and results in economies and increased efficiency.

AFMA Salutes New Idea Winners

The Armed Forces Management Association salutes the following for their outstanding contributions for better management in the Armed Forces as indicated in the following citations from the Office of the Secretary of Defense:

Vincent F. Caputo developed a Standard Department of Defense Stevedoring Contract, which resulted in a first year's saving for the Navy Department alone of \$227,000—award \$600.

George J. Gould developed an alarm system for comprehensive security coverage of a highly classified area in lieu of a guard system at a savings of \$12,000 annually—award \$200.



From left to right, top to bottom, award winners Caputo, Gould, Carrington, Sompayrac.



Maybelle E. Carrington modified procedures and techniques for JCS typing pool, which resulted in reduction of overtime from an average of 395 man-hours per month to 28 man-hours per month at a savings of \$7,217—award \$210.

Thomas D. Culbertson with employees of Bureau of Yards and Docks developed a modern commercial type accounting system for Navy Military Construction, which provided for better utilization of funds and better program management—award \$300.

Edward A. Sompayrac with representatives of the military departments developed a single wage system to meet the complex situation in the Panama Canal Zone; the successful development of this plan was a major step in the implementation of the 1955 Treaty with Panama. Award \$200.

ARMED FORCES MANAGEMENT



Newsletter

Armed Forces Management Association

Room 3C142, The Pentagon, Washington 25, D.C.

Phone: OTis 4-7193

National President: Rawlings S. Poole

Executive Director: VAdm. Harry E. Sears, USN, ret.

AFMA Newsletter is issued monthly by the Armed Forces Management Association through the cooperation of Armed Forces Management magazine to inform the membership and AFM subscribers of the aims, projected programs, and current activities of the Association.

Program Highlights

Response from industry to formation of Industry Advisory Council encouraging and Council expected to be operating within a few weeks. Will provide a valuable medium for the exchange of management knowledge between defense and industry, a prime AFMA objective. In keeping with AFMA objectives of providing maximum professional guidance and educational services for the membership, we are pleased to announce that Industrial College of the Armed Forces has agreed to enroll Association members in its correspondence management course "Economics of National Security." ICAF standards require that applicants be of rank of Major/LtCDR, Grade GS-12 or higher.

Course completion certificates will be placed in personal jackets of member graduates who will retain excellent 22 volume library furnished to students at no cost, unobtainable elsewhere. Opportunity for career service educational progression, and advancement in government or associate industry, obvious.

Further information and application forms being sent to chapters for distribution to members. You will hear more on this and other important education plans.

National Conference Plans proceeding ahead of schedule. Response on part of industry co-sponsors for exhibition excellent. Quality of guest speakers and presentation by military departments promise to be outstanding. **Remember the dates**—May 26-28 (26 Business Meeting only). Full schedule will appear next issue.

Due to increased scope of AFM magazine decision made to publish AFMA Journal on an annual basis following each National Conference. Entire issue will be devoted to conference proceedings—guest speaker presentations, panel discussions, banquet highlights, and awards presentation, report of the business meeting. A much enlarged and more comprehensive issue than now published, annual subscription rate will remain the same.

Corporate Memberships up 300 per cent in four months. Latest members to be welcomed to AFMA growing family of companies include North American Aviation, Inc., United Shoe Machinery Corporation, Ramo-Wooldridge Corporation, and Republic Aviation Corporation.

News for the Corporate Membership. In addition to Industry Advisory Council, designed as much for the benefit of industry as for defense, AFMA is establish-

ing a new service for Corporate Members. Titled "Problem Solving for the Corporate Member," this service will assist industry members in solving defense management related problems with which they are confronted. Address queries to National Headquarters.

Hints for Good Management. Read "How to overhaul a Sputtering Business," October issue *Management Methods*. "The Manager and His Staff," in Fall issue AFMA Journal. Soundsciber Sales Corporation excellent booklet, "Notes to Dictators," on how to improve dictating techniques and simplify verbage in letterwriting.

Chapter Briefs:

National Capitol Chapter. Principal speaker dinner meeting on 2 December at A & N Club in town was MGen Otto Nelson, USA Ret., Vice President, New York Life Insurance Company and a consultant for Sec Def who gave an interesting presentation on the problems of management organization in the nuclear age.

Hawaii Chapter. Guest speaker for the December meeting Mr. Martin B. Crehan of Pearl Harbor Naval Shipyard who gave interesting presentation on the review and analysis program at PHNS. Guest speaker for January meeting will be Dr. Lilian Gilbreath, world famous pioneer in scientific management and recipient of President Award at AFMA National Conference 1958.

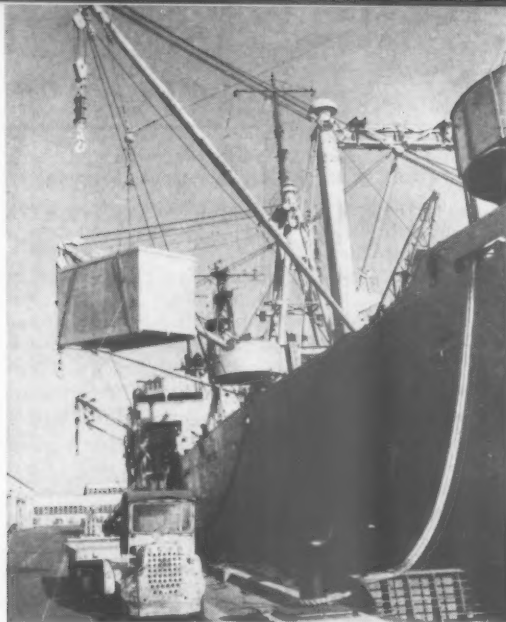
New Chapter Requests. Ordnance Weapons Command, Rock Island, Illinois and Air Force Special Weapons Center, Kirkland Air Force Base, New Mexico are latest to request chapter formation material bringing to twelve the number of such requests.

AFMA Executive Director addressed Comptroller Class at George Washington University on 4 December, Subject: "Elements of Good Management." His nomination for the three most important elements: leadership, organization, human relations. More on this in subsequent issues of the Newsletter.

Administrative Notes. New membership application form contained in Invitation to Join pamphlet and new AFMA Form 2 for chapter use should insure AFM magazine delivery to all members. Chapters are requested to report any nonreceipts of magazine giving member's name, address, Rank or grade and position title. Members at large should do likewise. Subscription rate now \$10.00 but still included in \$6.00 membership fee at no extra charge, along with AFMA Journal, a \$13.50 bargain for \$6.00—a good membership selling point.

Every Member Get a Member—or Several

(For further information on individual or corporate membership in the Association, circle number 200 on the business reply card on p. 49 or write AFMA direct.)



Household goods are purchased by Bureau of Supplies and Accounts. Storage and transportation of these goods is included in the "area buying" work of the Navy.

Why Navy Procurement is Flexible

Responsive buying is the key to a Navy supply organization that can shift and change to meet requirements—fast. The end result is operational readiness, giving the Navy the means to fulfill its world-wide defense mission in the most efficient possible way.

A KEY factor in keeping the U.S. Navy's fleets in operational readiness is the responsive purchasing capabilities of our naval establishment. We place stress on the word "responsive" because it sums up the prime factor in our concept of both policy and organization for purchasing, which recognizes that the purchasing mission is basically to supply our afloat and ashore forces through efficient buying.

To achieve an organization which is responsive, the Navy has developed, over a period of years, a combination of centralized and decentralized purchasing best suited to the needs of many consumers. This organization has taken shape along the lines of management responsibilities where the basic philosophy is to grant purchasing authority from the Office of the Secretary of the Navy to the bureau heads as required by their mission. This philosophy has given the navy a dynamic organization capable of shifting and flexing with the changing requirements of modern warfare.

The first grant of authority to purchase is made by the Secretary through

the Assistant Secretary for Material to the chiefs of the Navy bureaus. Purchasing policy guidance is furnished by the Assistant Secretary through the staff organization of the Office of Naval Material.

The missions of the Navy's bureaus are designed to reflect responsibility for the assigned programs, and purchase authority is granted along similar lines. A few examples will demonstrate this more clearly:

The Bureau of Aeronautics, which is responsible for Naval Aviation, is concerned with the purchase of airframes, aircraft engines and major aeronautical equipment.

The Bureau of Ships buys naval ships and craft, ship propulsion machinery (including nuclear), electronic navigational equipment and associated major shipboard type items.

It is the responsibility of the Bureau of Ordnance to purchase guns, ammunition, missiles, fire control equipment and other major armament.

All construction contracting is done by the Bureau of Yards and Docks.

Purchasing of educational services

for NROTC and similar personnel programs is accomplished by the Bureau of Naval Personnel.

The Office of Naval Research, the Marine Corps, and the Military Sea Transportation Service each purchase the materials and services peculiar to their needs.

Supply items such as consumables, spare parts, raw materials and services are purchased by the field purchasing organization of the Bureau of Supplies and Accounts.

The main point to be remembered is that purchasing is done by the activity responsible for carrying out each basic Navy program. The major items are planned, engineered and purchased by the technical bureaus on a centralized basis from Washington. On the other hand, the supply type items as described above and the nonstandard items are purchased by activities in the field on a decentralized basis.

About 70% of the Navy's purchase dollars during fiscal year 1958 were spent on the centralized purchases of major items which accounted for only 12% of the purchase actions. By far

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the largest number of purchase actions, aggregating more than 85%, are placed by the decentralized field purchasing activities. This collective group of activities during fiscal year 1958 accounted for purchases exceeding \$2.1 billion, or slightly more than 30% of the Navy total.

It is our mission in the Bureau of Supplies and Accounts to support the naval forces by supplying their needs. Because purchasing is a fundamental element of logistics, it is natural that field purchasing is a primary function in our bureau.

The responsibility of the Bureau of Supplies and Accounts is the procurement, custody, shipment, warehousing, issue, sale, and accounting for all supplies including food, fuel, clothing, general stores, and retail store stock and other property and services of the Navy.

Since the bureau itself has delegated all its purchase operations on a decentralized basis, it is appropriate that we exercise technical control of the purchase function at field activities as part of the Navy Supply System. Technical control, reduced to simple language, means that our bureau, through its Office of the Assistant Chief for Purchasing, prescribes the purchasing policies, plans, programs and methods and also, through various control mechanisms, evaluates the field purchase performance.

Technical control is achieved by granting authority to the supply officer of each supply activity or department to act as contracting officer for the Bureau of Supplies and Accounts. The supply officer is also provided with the procedures and policies to be employed in buying, and the monetary limits on the purchases to be made.

The bureau's field purchasing activities include many types such as supply centers and depots, navy purchasing offices, supply demand control points and single managers (inventory managers). Others include activities at the air stations, shipyards, ordnance plants and naval stations.

Our organization can be better visualized by grouping these activities under three general headings according to the types of buying done:

1. System buying
2. Area buying
3. Station support buying

Typical of our system buyers are the inventory managers such as the supply demand control points (SDCP's) and the single managers.

The different bureaus in Washington determine the need for and buy complete items such as ships, aircraft, buildings and armament. Once the

complete end items are built, it falls upon the inventory managers to provide support for the day-to-day operations—in other words, to support the fleet by determining what is needed, and buying what is needed in terms of repair parts, supplies, and the host of other items required to sustain the modern Navy.

The inventory manager is analogous to the home office of a large chain store operation. The home office decides what is needed and buys centrally for distribution to the stores. The Navy's inventory managers buy centrally and provide distribution of their specialized wares to storage areas accessible to their customers.

An illustration of this is the Aviation Supply Office, a supply demand control point. This office, which happens to be located in Philadelphia, buys aircraft repair parts, does the paperwork, and has them shipped to Aviation Supply Depots and Air Stations. From these points the parts are drawn from stock as needed. This relationship between the SDCP and the stocking point is termed system buying.

It can be seen that while the Bureau of Aeronautics purchases the complete airplane with its power plant, it is the Aviation Supply Office which must support the aircraft after it is built.

In a similar manner, the Bureau of Ships buys the submarine and then three separate supply demand control points subsequently provide support for the vessel. The Electronics Supply Office will provide the tubes for radar equipment; the Ships Parts Control Center keeps the logistic pipeline filled with replacement engine spares; and the Submarine Supply Office will furnish repair parts.

In the case of commodities such as petroleum products and medical and dental supplies under single management, the purchasing is broadened to include the needs of all the services. However, we still retain the idea of purchase authority commensurate with responsibility.

Since not all materials required to support the fleet are purchased by inventory managers, the Navy Purchasing Offices, Supply Centers, selected depots and other activities perform what is known as area buying. The area buying activities support the fleet and the Navy's shore bases by making individual purchases at the request of fleet units and the smaller naval activities located in the surrounding geographical area, whose requirements are not sufficient to justify their own purchase organizations.

Area buying activities also prepare indefinite quantity contracts for sup-

plies or services, such as stevedoring, tug and barge services, pilotage, storage and transportation of household effects. Upon request, deliveries under indefinite type contracts are made during a month, a quarter, or longer period of time as specified in the contract.

Certain area buying activities have also been designated to make purchases of all Navy requirements for particular items or groups of items such as machine tools and data processing equipment. They also purchase for Army and Air Force when specific commodities have been assigned to the Navy to purchase the needs for all three services under single department purchase assignments.

Finally, there is that purchasing done by various activities to support their own local requirements. This is called station support buying. For example, a shipyard will buy those materials required to repair its vessels and to maintain its plants which aren't purchased by the bureaus or supply demand control points because they are not in recurring demand by the fleet. Air stations, naval ordnance plants or other organizations may buy the materials they need for certain engineering projects or research and development programs in support of their own needs.

This group of activities varies markedly in size and complexity of mission. Some air stations are small; others are large. Some depots are located in the vicinity of an area purchasing office. Some stations comprise several thousand people with capital equipment valued in the millions. Other stations may be recruiting offices with only a few people and a couple of desks. Because of this, it is neither desirable nor practical to maintain full-blown purchasing organizations at all activities. Accordingly, at many of these activities the authority to buy for themselves is limited by dollar amount to \$2500, \$1000 or \$100 per purchase. This amount is determined by the cost and frequency of purchase items required by the activity, as well as its nearness to an area buying activity. This action minimizes duplication of functions and staffing, consistent with timely service to the customer.

By assigning purchase authority on lines of program responsibility, and also by assigning technical control of the purchase function at field activities to the Chief of the Bureau of Supplies and Accounts, Navy purchasing is well suited to provide an essential responsive logistic service to its various customers.

Pentagon Profile

This Month: Charles H. Shuff

Deputy Assistant Secretary of Defense
International Security Affairs



Shuff inspects ROK positions during Far East tour.

"I BELIEVE in the Military Assistance Program because it has been and is standing guard for us on many fronts. The saddest part of it is that many Americans fail to realize what and how much the program accomplishes for them. They do not realize what it would take—without this program—for our own troops to provide the same degree of efficient guard now provided by allied forces—even if there were enough troops, and there aren't—and the staggering amount that it would add to our own defense budget."

The speaker is Charles H. Shuff, Deputy Assistant Secretary of Defense for International Security Affairs. His job: to manage the Military Assistance Program of our country's Mutual Security Program. In terms of dollars, this represents a U.S. expenditure of over \$2 billion per year.

The Military Assistance Program product: Preparedness. Therein lies the big difficulty in explaining and justifying MAP activities. Says Shuff: "A military organization doesn't accrue a profit. We can only be prepared, and this is a matter of relativity. If something happens, those who are prepared are heroes, and if nothing does, they are a liability. The real contradiction is that our job is to see that nothing happens."

Coming to his job in 1957, Shuff brought with him many qualifications. As a salesman, he had been on the Pan American World Airways sales staff, and later, sales manager for Eastern Air Lines—a prized possession on Shuff's desk is the autographed picture of Captain Eddie Rickenbacker, Eastern's president.

Shuff gained his knowledge of the military the same way—by doing. Beginning as a private in the New York Air National Guard prior to World War II, he worked up through the

ranks to his present full colonelcy in the Air Force Reserve. He originally joined ANG to learn more about airplanes (he was working for PanAm), but Shuff was not long satisfied as a bystander: "I decided that if I was going to be associated with airplanes, I might as well learn how to drive them."

During World War II, he served in the Southwest Pacific flying "more desks than airplanes." As a First Lieutenant, he was given command of a full squadron—450 men and their equipment. "Our squadron was pretty well separated from the next level of command. I have always been grateful to the Air Force for giving me my first real responsibility."

After his post-war stay at Eastern, Shuff did a short hitch as Air Force Deputy Assistant Secretary for Mutual Security Affairs. In this job he handled the Air Force end of Military Assistance Programs from February 1952 to November 1953.

The last two qualifications for his present job, he picked up working for Westinghouse Electric Company as Assistant to the President and Director of that company's Defense Products and Electronics Divisions. His duties were primarily trouble-shooting on Westinghouse International dealings.

In this capacity, Shuff gained valuable knowledge of consortium contracts, under which two or more companies work to produce major assemblies for an end product.

ISA officials have often found that, because of boundaries, currency and differences in background, foreign nations have great difficulty dealing with each other. According to Shuff, "The consortium contract provides all of the participants with a profit motive. And they are all producers and customers. This way, we are able to get away

from that old bugaboo of national antipathy."

In the job he holds now, Shuff has served under two Secretaries of Defense (Wilson and McElroy), and has, in effect, seen three Assistant Secretaries for ISA. He was originally suggested for the job by the then-incumbent Assistant Secretary, Gordon Gray. He served the entire time that Mansfield Sprague held the top ISA job, and the recently appointed chief, John N. Irwin "was satisfied enough with my work to keep me on the job."

In spite of firm support by Defense Secretary Neil McElroy, MAP has been earmarked by Congress for a thorough shakedown, and as a program which will be carefully screened for possible fund-cutting.

Says Shuff, "It is always a challenge to me to explain the many ramifications of our military assistance programs—and the need for them—to a group of people with the varying backgrounds that you find in Congress. Our problems are relatively remote to the voter, who is removed from the problem areas by thousands of miles. It is hard for anyone, unless he travels to these countries and understands the implementation of our present foreign policy, to understand what we're doing in this field."

"For every U.S. dollar spent on these programs, the nations we aid have spent more than 5½ times as much on their own and the collective defense. Not in the immediate future, but in the foreseeable future, we expect this ratio to shift even more in our favor."

Shuff recently completed a 34-day tour of the Far East, and although he was favorably impressed by results of the program, he admits that "We still have a lot of problems. I feel that some of the nations we are aiding ought to do a little more to help themselves."

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This is a *mutual* security program and the more mutuality that we can grind into it, the better off we will be. Some of the nations we work with don't have yet, and won't, in the foreseeable future, have the ability to shift entirely for themselves."

Supply and logistics management was the second trouble spot cited by the Deputy Assistant Defense Secretary. "We have a logistics problem of substantial proportions. Those nations less experienced than the U.S. which must carry out all the operations of a modern supply system have a pretty rough time of it. There is not much point in having assets if you don't know where they are and how to get at them."

Third on the list of problems was simply "... growing pains. There are substantial economic and political ingredients that have to be figured into our programs. In the Far East, for instance, there are many nations that need continuing economic assistance to be able to afford a successful defense posture."

One item which will smooth the job of the Military Assistance Program workers, says Shuff, is the recently formed Military Assistance Institute (See December AFM, p. 19). "This," he said, "will certainly improve the work we do in the field. It is always better to use trained personnel than to have them walk into a new assignment cold. People don't realize the problems of simply living in a foreign country. You can spend 50% of your time just living, eating, going to work, shaving and so on—without beginning to get your job done."

"For the American, this is quite a problem, without even considering the language barrier. We have to meet at least halfway the lack of sophistication—by our standards—that exists in some other nations."

A major attraction for the 43-year-old DoD official in his job with Westinghouse was the "challenge of an ever-changing situation. I can't stand routine." He would seem to have found the ideal job, in his present position.

Standing a tall six-foot-four (when asked about this, he fingers his head gingerly and tells about an inspection tour aboard a Japanese destroyer), the Deputy Assistant Secretary of Defense in charge of Military Assistance Programs is an imposing figure. Combining a quiet way of speaking with a personal intensity the listener can practically feel, Charley Shuff is—as members of his staff will testify—a sincere and dedicated worker, combining a wealth of experience with a grasp of his job that is witnessed best by the way it is getting done.

Dates to Circle

January 12-14, 1959

Fifth National Symposium on Reliability and Quality Control—Philadelphia, Pa.

January 12-16

Society of Automotive Engineers annual meeting and engineering display—Sheraton-Cadillac and Hotel Statler, Detroit.

January 18-20

Eleventh annual convention—Helicopter Assoc. of America at Villa Square, San Mateo, Cal.

January 26-29

Plant Maintenance and Engineering Show—Public Auditorium, Cleveland, Ohio.

January 26-29

Twenty-seventh annual meeting—Institute of the Aeronautical Sciences; Sheraton-Astor hotel, New York City.

January 27-29

Fifth annual radar symposium (classified)—University of Michigan, Ann Arbor.

January 27-30

Fifteenth annual technical conference—Society of Plastic Engineers; Hotel Commodore, New York City.

January 28-29

Fifth annual Midwest Welding Conference—Illinois Institute of Technology, Chicago; sponsored by Armour Research Foundation.

January 28-29

Nuclear Fuel Elements symposium—Columbia University; sponsored by Columbia University and the Sylvania-Corning Nuclear Corp.

February 3-5

Fourteenth Annual Technical and Management Conference—Chicago, Ill.; sponsored by Reinforced Plastics div. of the Society of the Plastics Industry, Inc.

February 6-7

Eleventh Annual Industrial Engineering Institute—simultaneous sessions at Berkeley and Los Angeles campuses; sponsored by University of California.

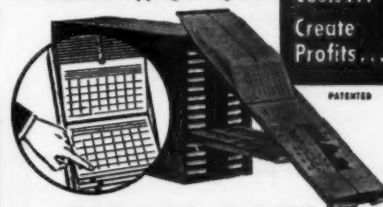
March 3-5

Western Joint Computer Conference—Fairmont Hotel, San Francisco, Calif.

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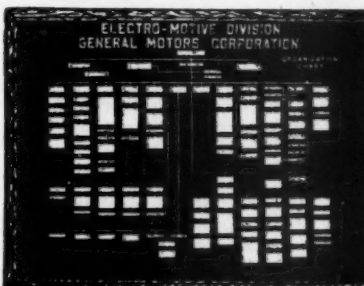
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How Air Force Handles Logistic Support



by Major Gen. T. P. Gerrity
Commander
Oklahoma City Air Materiel Area

PROCURMENT of a million and half separate inventory items of Air Force equipment, from ballistic missiles to ball bearings, and supplying and maintaining this equipment around the world is the mission of the logistic arm of the Air Force—the Air Materiel Command. To provide responsive and timely support to the operating units, AMC's procurement, supply and maintenance operations are closely integrated with Air Force research and development, and with tactical, strategic and training demands.

In 1952, AMC began to decentralize many responsibilities that had been performed at its Headquarters at Wright-Patterson Air Force Base, Dayton, Ohio. Maintenance and Supply functions were the first to be decentralized to AMC's operating organizations—the Air Materiel Areas and Air Force depots. Next, portions of the Command's multi-billion dollar buying business were assigned to AMC field organizations. Within a few years the procurement capability of the Air Materiel Areas has increased to where authority is granted to approve contracts worth up to \$1,000,000. Contracts for more than this receive final review and approval at AMC Headquarters. In effect, AMC has decentralized virtually all procurement functions except the purchase of complete aircraft, missiles, engines and major equipment systems.

Paralleling this decentralization was the evolution of a new management philosophy—management by weapon system. Under this, there was increased emphasis upon a completely integrated package, designed and engineered together. Since World War II, individual weapons increased in complexity and diversity. Interchangeability between weapon systems at component and subsystem level began to disappear.

After considerable analysis, AMC decided to adopt a form of weapon system management. Each new weapon system is assigned to a Logistic Support Manager who will be served by the latest data processing and communication equipment and who will have the necessary authority over resources to enable him to insure effective support. This technique of management has definite advantages. It concentrates in one place all the vital information about a weapons system and thus simplifies many support manager problems. It also gives the using command a single point of contact within the logistics structure for all matters relating to that weapon.

The Oklahoma City Air Materiel Area (OCAMA), as well

as the other eight Air Materiel Areas in the United States, serve as AMC's Logistic Support Managers. OCAMA's support mission encompasses many of the present front-line weapons of the Air Force, particularly those used by the Strategic Air Command. These include:

Aircraft—

Boeing's B-52, B-47, KC-135, B-50, C/KC-97, and B-29.

Missiles—

North American's Hound Dog, McDonnell's Quail, Bell's Rascal and Martin's White Lance.

Engines—

Allison's J-33, J-35, J-71 and T-56; General Electric's J-47, J-73, J-79, J-85 and J-93; Westinghouse's J-81, and Bell's LR-67.

Accessories—

Air Force Classes 03E (turbo superchargers), 03F (miscellaneous aircraft accessories and parts), and 03I (aircraft fuel systems, hydraulic, vacuum, oil and de-icer systems).

As mentioned earlier, the increase in procurement responsibilities at the Air Materiel Area level has been gaining momentum in the past few years. Using OCAMA as an example, statistics will demonstrate this impact. The dollar value of OCAMA obligations was \$255,000,000 in FY 56. This rose to \$354,000,000 in FY 57, and increased again in FY 58 to \$517,000,000. Estimated obligations for this fiscal year are \$650,000,000, involving some 55,000 contractual items. These figures do not include contracts let at AMC but which are administered by OCAMA. Uninvoiced dollar balance of contracts administered by OCAMA is approximately \$3.5 billion.

To meet the challenge of increasing responsibility, OCAMA's Directorate of Procurement and Production has been organized along weapon system lines. The Directorate includes five operational divisions. Four of these have weapon or commodity responsibility as their names signify. These procurement divisions are Bomber, Support Aircraft, Aeronautical Engines, and Aeronautical Equipment. The fifth operating division, known as Depot Procurement, handles local buying to support warehouses, shops and base facilities. Depot Division workloads have also increased. Since 1954 the dollar value of obligations has gone up about 10 percent each year, with \$24,000,000 forecast for obligation this fiscal year.

Review of contracts and development of recommendations for a major contract Command procurement plan are two major functions performed by the Procurement Control Office. All contracts above \$10,000 and selected ones below this amount are reviewed to insure uniformity and high quality. Application of the Armed Services Procurement Regulations, Air Force Procurement Instructions and Public Laws, plus the exercise of good business judgment, provide the procurement quality standards. For major contracts, recommendations are developed that take into consideration all aspects of the procurement before bid invitations or requests for proposals are issued. The recommendations, once approved by the Director and Commander, become the Command's procurement plan. This information is transmitted to Headquarters AMC and Headquarters USAF.

Pre-negotiation review of major procurements are held with the Procurement and Production Directorate at AMC Headquarters to insure consistent application of policy in pricing and other important elements of negotiation across the decentralized AMC Procurement agencies. The Procurement Control Office, through close work with all procurement divisions and the Office of the Procurement Committee at Headquarters, AMC, helps to maintain high quality standards applicable throughout AMC.

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The Directorate's Small Business and Contractor Relations Office aids small business firms. This office is also an information bureau, providing prospective contractors with the latest bid invitations from OCAMA and other Government procurement agencies. The Production Control Office and the Administrative Office supplement and provide staff support to the Directorate's buying divisions. These divisions and offices comprise the Headquarters organization of Procurement and Production.

However, the procurement function—the negotiation and award of contracts—is only part of the Directorate's job at an Air Materiel Area. The other major portion is the production function, or the administration of contracts. Throughout AMC, contract administration is carried out by 20 Air Procurement Districts and 28 Air Force Plant Representatives, located in key industrial cities. Air Procurement Districts administer contracts within their geographical areas, while the Air Force Plant Representatives, located at the contractors' plants, are responsible for contracts with that company. Both Air Procurement Districts and Air Force Plant Representatives report directly to the Air Materiel Areas.

While some 19,500 military and civilian personnel are assigned to OCAMA Headquarters, approximately 2,000 other personnel of OCAMA are stationed throughout the United States, working daily with contractors, industrial firms and other Government organizations. These field personnel operate OCAMA's three Air Procurement Districts and five Air Force Plant Representative Offices.

Main offices of the Districts are in Chicago, Milwaukee and St. Louis, with procurement offices in other important industrial cities. Offices of the five Air Force Plant Representatives within OCAMA are located at the plants of three airframe and two engine contractors. The airframe plants are Boeing Airplane Company, Seattle, Washington; Boeing Airplane Company, Wichita, Kansas, and Douglas Aircraft Company, Tulsa, Oklahoma. The engine plants are Allison Division, General Motors, Indianapolis, Indiana, and General Electric Company, Lockland, Ohio.

Procurement, like the other functions of logistics, must be geared to today's logistic concepts. Because of the technological revolution since World War II, logistics must be more responsive to the needs of the operational commands. General E. W. Rawlings, Commander of the Air Materiel Command, has listed the requirements for meeting today's logistic demands: Speed, precision and flexibility. They are essential to fill the individual needs of a complex, costly, and constantly changing weapon systems.

Within OCAMA, as is true for similar organizations, it is unlikely that the requirements of speed, precision and flexibility can be met without the essential ingredient of teamwork between Maintenance, Supply and Procurement. The Procurement Officers can fulfill his role most effectively only when he is completely supported by the requesting agency. It is essential that all agencies realize that the Procurement officer is performing a service for the entire Air Force team to meet a Command objective. Team spirit pays off in everyday operations, but when a priority program rears its head teamwork is the bedrock of an organization's ability to perform.

This was the case at OCAMA when Project Milk Bottle came into being in May 1958. This extensive and concentrated modification program involved the Strategic Air Command's B-47 fleet. The modification, a precision operation to strengthen the wing of the Stratojet, is designed to increase low-level tactical capability. Because it was essential that the B-47's be modified and returned to service as soon as possible, this program was on a priority basis. Procurement, Maintenance, Supply and the other supporting organizations of OCAMA swung into action. Within seven days the workload in the shops at Tinker

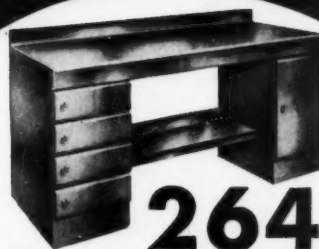
was changed from maintenance of KC-97s to B-47 modification.

Purchase requests literally poured into Procurement for the necessary material and services to keep the program moving. Normal processing procedures were speeded up. From the beginning of the program in May through early November, 2,062 Milk Bottle purchase requests had been processed in an average time of 24 hours for each. Normal processing time is 12 days in the Depot Procurement division and about 40 days in the weapon and commodity divisions. At every turn, teamwork kept the program moving.

During Project Milk Bottle, Maintenance generated a requirement for boroscopes, precision instruments used to inspect almost inaccessible locations. After a fast but thorough survey of possible suppliers, Procurement located a small eastern firm capable of producing the boroscope that would meet the rigid requirements. However, the contractor had never produced instruments to meet the specifications demanded for this work. Maintenance dispatched a quality control specialist to the contractor's facility. The specialist aided the contractor in meeting specifications, and shortly thereafter boroscopes began to move off the production line. This one instrument allowed Maintenance to reduce its inspection time in certain phases of the work by about 75 percent.

As a result of the hard work, ingenuity and cooperation of all participants, Milk Bottle has met its rigid time schedule.

Milk Bottle is only an example, although a dramatic one, of the teamwork and flexibility that must be inherent in an Air Materiel Area organization if it is to carry out its mission—supporting the operational organizations of the Air Force. Increasing this flexibility is one of the major objectives of the future.



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Top Missile Men Rate U.S. Programs

The U.S. is probably about even with Russia in the International Ballistic Missile race, but is lagging in the competition for IRBM's according to Air Force Missile Chief Maj. Gen. Bernard Schriever.

Schriever told a group of industry executives at an American Machine and Foundry-sponsored breakfast that Air Force was satisfied with, and wanted to keep, both the Titan and Atlas missiles.

His remarks were in general accord with those of Maj. Gen. John B. Medaris, who appeared on television before the Face the Nation. Medaris said that we have outstripped the Russians in the year since they launched their first satellite, and that U.S. scientists are capable of matching anything the Russians come up with.

At the same time, a more pessimistic view was expressed by Werner von Braun, before a Meet the Press panel of newsmen. Von Braun said the U.S. is lagging, and that we will have to improve our rocket speeds to catch up on what he estimated to be a five-year lead held by the Soviets.

ARPA Program Outlined; Satellite Series Set

An effective ballistic missile detection system is getting top priority at the Advanced Research Projects Agency, according to ARPA Chief Scientist Dr. Herbert F. York. The program is broken into two phases, one working with the present state-of-the-art, and the other aimed at a more advanced system to be used against more sophisticated future missiles.

Other major ARPA programs, said York, were in solid propellents, space research (shared with NASA), and a million-pound-thrust rocket cluster. ARPA would also like to build a high-energy liquid upper-stage rocket to be used on existing ballistic missiles. Included in the military space research communications satellites.

Shortly before York spoke to the American Ordnance Association, ARPA Director Roy Johnson outlined an open-ended satellite program, which will be conducted during next year by the DOD agency.

Called Project Discoverer, the program will be handled by the Air Force Ballistic Missile Division. The Satel-

lites will be fired from Vandenberg AFB, Calif. Project Discoverer will represent the "largest single item" in ARPA's budget next year.

The series—"at least a dozen" vehicles—will probably be fired about one a month. Although the program will begin with Thor first-stage rockets, it will be flexible in the future, with Atlas satellite firings planned for around July or August in 1959. From there, Johnson said the Discoverer series would move to rockets which could include the million-pound-thrust vehicle.

The program will aim for short orbits—from two revolutions to a week in orbit—and will be used to fire animals into space.

NASA Has Busy Month; Glennan Halts Takeovers

National Aeronautics and Space Administrator T. Keith Glennan and Army Secretary Wilbur Brucker early last month signed a compromise agreement, following NASA's proposal to take over most of Army's space work. Army retained its Ordnance Missile Command, but NASA gained control of California Tech's Jet Propulsion Laboratories.

Shortly after the White House announced its decision on JPL, Glennan told pressmen that he had "no other designs on any other military facilities." The JPL switch will transfer about 2,300 Pasadena employees to NASA control.

Most recently, NASA has announced a contract to Rocketdyne Division of North American Aviation for development of a 1-million to 1.5-million-pound-thrust liquid rocket engine. To stretch over a four to six year period, the program will cost between \$150- and \$200-million. Defense Department's Advanced Research Projects Agency is also working to-

wards a similar thrust-class rocket engine cluster.

Major points in the compromise are as follows: (1) AOMC's commander will have full authority to use all resources in his command, his contractors and any other Army agencies he ordinarily deals with in accomplishing NASA projects. (2) Key AOMC personnel will serve on technical committees under NASA chairmanship. They will also serve as consultants to aid in developing broad space goals, and in setting specific means to these goals.

(3) Specific project orders will be given directly to AOMC by NASA, with all necessary funds, authority and responsibility. (4) NASA will have direct access for technical contact and effort direction on assigned projects. One proposal in this line was that NASA maintain a small liaison staff at AOMC.

(5) NASA will have what amounts to a blank check to move in on any projects it assigned to AOMC, and to use any Army facilities—AOMC or otherwise—that are used in these projects. (6) Finally, the AOMC Commander is responsible for scheduling space and missile activities under his control to meet priority requirements of NASA in a manner consistent with overall national priorities. He is also committed to report to DOD any conflicts between AOMC and NASA.

New York Air Defense Electronically Linked

Army Air Defense installations protecting New York City have been electronically coordinated with an Interim Battery Data Link—IBDL. Built by The Martin Co., the system became operational in October.

Installed at each Nike battery throughout the defense area, IBDL is an interim measure which will elec-



Newly designed rotating parachute offers greater efficiency with less material used. Swivelling action allows four strips of material to do the job of an entire chute, creates air currents which extend braking diameter.

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C-130B flies from Lockheed Aircraft Corp. plant in Georgia. The plane is an improved version of the C-130 Hercules, now in use by Military Air Transport Service. Plane is powered by four turboprop engines.

tronically coordinate the missile batteries, providing a target data link. This will enable battery commanders to tell which targets, in the event of an attack, are engaged by other batteries.

IBDL will eventually be replaced by the Missile Master, which is already in use in the Washington/Baltimore area. Martin will maintain the IBDL system during its first year of operation.

Army Engineers

Develop Thermograph

A camera-like device which uses heat radiation in the same way that an ordinary camera uses light has been developed by Army Engineers for use as a night vision aid.

The device depends on heat radiations, and is called a Thermograph. The Thermograph was developed to determine basic characteristics for a military infrared "camera." The device, when perfected, can be used for such operations as mapping, camouflage detection, reconnaissance and target locating.

Aircraft Repair Shops

To Be Made Mobile

Lightweight aircraft maintenance shops, which can be either air-lifted by helicopter or carried by a standard 2½-ton truck have been developed by the Army.

The kits are designed to handle light aircraft maintenance in field situations. Except for an air compressor, a three kilowatt generator and portable heating unit, the shops are self-sufficient. Weighing less than 4000 lbs., the shops are equipped with lightweight tools and leveling jacks for uneven terrain.

Industry Developments

One-Man Helicopters

Show Much Potential

Two thousand combat-equipped troops could be put into the air in one-man helicopters for about the same cost as one \$2 million aircraft which carries only 20 similarly equipped men, according to Gilbert Magill, president of Rotor-Craft Corp.

Magill told a meeting of the Los Angeles Chamber of Commerce that the small craft would greatly decrease the targets an enemy would have in size. Tests on the Rotor-Craft Skyhook, aboard the Nautilus, have shown that the small copter can be unpacked, strapped on its passenger's back and have the man airborne in 45 seconds.

Lockheed Discloses

Quality Control Plan

Lockheed Aircraft Corp's Georgia division has unveiled a "conception-to-retirement" quality followup plan for its aircraft and allied products.

Under a Director of Reliability, the plan begins with initial design concepts, and can carry through actually until the plane is retired from active service. Said a Lockheed spokesman, "Because of the variety and complexity of new weapons systems, concentrated and pinpoint emphasis is required to achieve new quality standards."

Named to head the new division is Gordon Thorn. Says Thorn, "The variety and complexity of these new weapons systems requires constant, unremitting inspection of step-by-step design, production and testing methods of the finished product before and after it is delivered to the customer."

Thorn pointed out that nuclear aircraft, because of their endurance characteristics, will be even more dependent on high reliability.

Large Jet Landed

By Ground Control

A B-47 jet bomber has been safely landed under complete control of an automatic electronics all-weather landing system, developed by the Bell Aircraft Corp.

The system, says Bell, could be the answer to traffic stackups at the nation's airports. It will also allow operations in weather which was formerly prohibitive.

The system is being evaluated for incorporation in the Air Force B-47, and allows a feed rate to airports of 120 planes an hour. It employs an automatic radar tracking beam, which is coupled to an electronic computer. The computer calculates necessary approach information and transmits corrections to the plane's automatic pilot.

General Electric Builds

New Ram-Test Facility

General Electric Co. has announced plans to build a \$2.5 million ram-test facility, for checking out high-Mach turbojet engines. Most likely prospect for a first test will be the GE J93, to be used in the B-70 and F-108.

The ram-test facility will contain a compressor room housing, a 32,000 hp synchronous motor, a 250,000 cu. ft. per minute axial flow compressor and a 3,250 hp starting steam turbine. Also, a control room housing all controls and instrumentation needed to operate the facility.

Ram air supply will be aided by air from GE's Flight Propulsion Laboratory Dept. compressor station. The testing setup is scheduled for completion early this year.

Convair's Lobber

Successfully Fired

Convair/San Diego has announced a first successful firing of the recently announced Lobber cargo ballistic missile. The small missile carried a 50-pound payload over a six-mile range.

Larger similar missiles, capable of carrying, fuel, missiles, and ultimately men, are under study at Convair. Lobber is a nine-foot solid propellant missile which travels at speeds up to 1500 mph.

Convair says the missile is highly mobile, has a portable launcher, and can be carried and operated by as few as three men.

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Electronics Engineer GS-13
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Electronic Engineer GS-11
Mechanical Engineer GS-9
Mechanical Engineer GS-11
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Your Investment Future

MUTUAL FUND COMPARISONS CAN BE MISLEADING

by **W. Mac Stewart***
Financial Editor

THE rapid growth of the mutual fund industry in the past ten years has led to the "discovery" of this field by many financial writers and magazines. Many thousands of words have appeared in the nation's financial press on the subject of mutual funds.

Usually the statistical data takes the form of comparisons of percent of investment income and growth in net asset value per share.

"Well," you may ask, "what's wrong with that?" Generally, these fund comparisons should be viewed with considerable skepticism for many reasons. Many comparisons, in considering income, use only the "investment income" figure. They either ignore the "capital gains" dividends completely, or add them to the net asset value of the shares at the end of the comparison period. Obviously this does not take into consideration the compounding effect of reinvesting these capital gains dividends at the time each is paid.

True, the two types of dividends should be shown separately, as each takes a different tax rate, and has different tax advantages. But both should be shown. And, since perhaps 95% of fund investors have *all* their dividends reinvested, any statistical comparisons should show the effect of reinvestment of them—at the actual charge, if any, made by each fund.

The second reason why many of these comparisons are invalid is the periods of time selected for comparison. Since nearly all fund shareholders are interested in a long-term investment, what is the value of a one-year comparison? Some funds, when compared on a basis of a full ten years, just don't stack up.

The greatest fallacy in these comparisons is that mutual funds vary so widely in their investment objectives and policies that they can be compared with each other no better than can oranges be compared with potatoes.

Individually they differ from each other widely. Some have an objective of high current income . . . some of long term growth with less emphasis on income. Some concentrate principally on preservation of capital. And there are any number of degrees of each of these objectives.

*Vice President-Research
Hamilton Management Corporation

Some funds invest only in bonds . . . some in bonds and preferred stock . . . in common stock only . . . or a combination of these. Some funds are highly speculative in nature, offering possible higher return in exchange for higher risk. Other funds are so conservative as to offer very low, but consistent returns, with great safety. Others are "middle of the road" as to degree of speculation. It is obviously impossible to devise any basis for comparison of all these funds that is fair to all of them, and takes into consideration their investment objectives and policies.


Logically, then, this discussion leads to the question: "If comparisons are not a good method for choosing a mutual fund, what is?" If the fund's objectives coincide with yours, if the rights and privileges suit you, if you are satisfied that the fund has capable management, if past results indicate that the fund is doing a good job of meeting its objectives—then buy it.

The more you shop around, the more confused you may become. Remember, there is no such thing as **THE BEST** fund. If there were, there wouldn't be some 200 funds in existence. Each has its advantages, and fits the needs or desires of some investors.

But in buying, don't try to crystal-ball the market. The time to invest is *when you have the capital*. You invest in a mutual fund for results over the long haul. And daily price fluctuations of this year will mean little or nothing to the value of your investment ten years from now. This applies even

more to a monthly investment plan, in which dollar-cost-averaging automatically compensates for price fluctuations for you.

So if you feel that a mutual fund is the answer to meeting your future needs, I suggest you take the pseudo-scientific "comparisons" with a grain of salt. Select the fund that's best for **YOU . . . and GET STARTED.**



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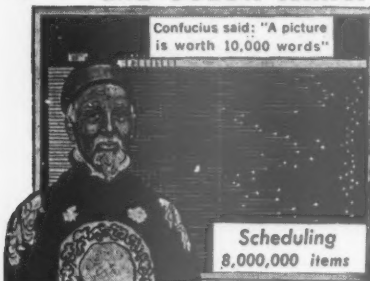
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Rundown of Key Contracts

ARMY

- \$2.6 million to Chrysler Corp. for Redstone missile components.
- \$1.9 million to Stewart-Warner Corp., Stewart-Warner Electronic Division, for radio teletypewriter sets and accessories.
- \$25 million to Republic Aviation Corp. for Swallow SD-4 surveillance drones.
- \$2.8 million to Telecomputing Corp. for data processing services at Holloman AFB branch of White Sands Missile Range.
- \$3.3 million to Chrysler Corp. for Jupiter missile components and engineering services.
- \$1.3 million in three contracts to California Institute of Technology for engineering research and development.
- \$1.7 million to R. G. LeTourneau, Inc. for design and construction of a 450-ft., 12-unit overland supply train.

NAVY

- \$2 million to Collins Radio Co. for a high density microwave system, to be used at Pacific Missile Range.
- \$20.4 million to The Martin Co.'s Orlando Division for production of air-to-surface Bullpup guided missile.
- \$1.6 million to Chance Vought Aircraft, Inc. for materials and services to acquire and install and construct items of civil works.
- \$1 million to Radio Corp. of America, RCA Service Co. Division, for field engineering services in maintenance, repair and operation of Aircraft electrical gear.
- \$2.6 million to McKiernan-Terry Corp. for type C14 catapults and spares.
- \$6.5 million to Beech Aircraft Corp. for KDB-1 target aircraft.
- \$1 million to Motorola Military Electronics Division for development of an improved guidance unit for the Sidewinder air-to-air missile.
- \$4.5 million to the Electric Storage Battery Co. for submarine batteries for fleet replacement purposes.
- \$1.1 million to The Philco Corp. for field engineering services for aircraft electrical and electronic equipment.
- \$1.8 million to Stewart-Warner Corp., Stewart-Warner Electronics Division for electronic equipment.
- \$17 million to Sikorsky Aircraft Division, United Aircraft Corp. for production of HSS-2 ASW helicopters.

AIR FORCE

- \$18.9 million to North American Aviation, Inc. for production of the GAM-77 Hound Dog air-to-surface missile.
- \$39.3 million to General Electric Co. for aircraft nuclear propulsion program.
- \$29.3 million to American Machine and Foundry Co. for design and development of Titan ICBM launching system.
- \$33 million to Hoffman Electronics Corp. for TACAN air navigation equipment.
- \$16.9 million to Northrop Aircraft, Inc. to cover initial funding for manufacture of T-38A supersonic trainers.
- \$20.4 million to Radio Corp. of America for modification and replacement of ARC-21 through ARC-65 equipment on various aircraft.
- \$3.8 million in three contracts to Bendix Aviation Corp., Eclipse-Pioneer Div., for aircraft instruments, data and components.
- \$3 million to Curtiss-Wright Corp., Propeller Division, propeller assemblies and components for C-133B aircraft.
- \$1 million to Flight Enterprises, Inc. for MATS-SAM of C-121 aircraft.
- \$1.1 million to General Electric Co. for J85 engine preproduction and special tooling effort.
- \$1.4 million to Allison Division, General Motors Corp. for turboprop engines for C-130 aircraft.
- \$16.2 million to Hughes Aircraft Co. for aircraft and weapons control systems for F-106 aircraft.
- \$15 million to Boeing Aircraft Co. for B-52 airplanes and associated support items.
- \$1.7 million to AiResearch Manufacturing Co. of Arizona for constant speed drive assemblies.

ARMED FORCES MANAGEMENT

New Products

Administrative

SPACE GLOSSARY: Republic Aircraft Corp. has compiled a pocket-sized glossary of astronautical terms to guide laymen. Booklet contains 133 of the favorite words of space scientists and engineers.
For more facts request No. 190 on reply card.

CONTACT BULLETIN: Nineteen contact arrangements are illustrated in a new 4-page bulletin on Series DTX Rack and Panel connectors manufactured by H. H. Buggie, Inc. The design of the DTX Series is such that a large number of contacts can be made in a relatively small area. The connectors have wide applications in both military and industrial fields.
For more facts request No. 105 on reply card.

AUTOMATIC PROGRAMMING SYSTEM: Davcon, Inc., announces development of a new Programmer and Recorder System designed as a control unit in the pilot plant production of gasoline by catalytic reforming. The device is capable of programming 48 complete cycles of operations, each consisting of 15 separate events in sequential relationship. An alarm system is incorporated which simultaneously detects faults, indicates fault sources, sounds the alarm, disconnects primary power to the pilot plant and prohibits the programmer from advancing to the next process step.
For more facts request No. 117 on reply card.

MILITARY CATALOG: A new 23-page, 9 x 11 1/2-in. catalog listing official United States Government Specifications for a wide variety of adhesives, coatings and sealers is now available from the Adhesives, Coatings & Sealers Division, Minnesota Mining & Mfg. Co. The catalog lists, in numerical form, Military, Army, and Federal specifications, their definitions, and the corresponding 3M adhesive, coating or sealer that meets those specifications.
For more facts request No. 121 on reply card.

ADDING MACHINE: A new Electric Adding Machine, designed to fit into the most modern office and incorporating new operating advantages, has been introduced by Remington Rand Division of Sperry Rand Corporation. All feature keys—subtract, multiply, non-add, correction, and add-total are electrified and arranged in perfect balance, well within the normal span of the operator's hand.
For more facts request No. 127 on reply card.

Operations

DRUM CRADLES: All welded, tubular frames and channel braces give GRIZZLY Cradles modern styling and added strength. Designed for rugged use, all edges rounded and smooth. Assembled complete, ready for immediate use upon delivery. Cradles are available with and without casters, with and without drum rollers. When requested, the Cradles are furnished with 2 swivel and 2 rigid casters to enable easy and quick placement to exact location for instant use. Cradle sizes—are all 30 inches long, 18 1/2 inches wide with various heights of 19, 25, 26 1/2 and 27 1/2 inches.
For more facts request No. 110 on reply card.

BLOWER FLUID COOLER: A new line of special fluid coolers developed specifically for cooling water-cooled type electronic tubes is now available from American-Standard, American Blower Division. The new units consist of a water type copper coil, motor-driven fan and motor driven pump. They are designed to be small and compact to occupy minimum space in an electronic equipment installation. One unit in the series is capable of extracting 13,500 BTU/hr from water having a minimum flow of 5 gpm with maximum water leaving temperature of 150F and maximum ambient air temperature of 113F. It requires a space 24 in. x 32 in. x 27 in. for installation.
For more facts request No. 113 on reply card.

PAVING BOOKLET: High temperature paving problems and their solutions are described and illustrated in a new bulletin now available from the Aviation Products

Division of the Walter Maguire Company, Inc. This four-page, two-color bulletin includes the military (non-proprietary) specifications for work on jet air fields and missile launching slabs. Text offers case histories on installations calling for high capacity for resistance to heat and thermal shock.
For more facts request No. 114 on reply card.

MODULAR PARTITIONS: The design and production of a new concept in free-standing modular partitions was announced today by The Mills Company. This new line of Mills metal partitions, called the "Mainliner," offers an economical solution to the problem of providing easily changeable semi-private or private space control in all types of non-residential buildings. The "Mainliner" has complete inter-changeability of partition sections and accessories, which enables users to reroute traffic at any time, alter floor layouts quickly or add to existing facilities. It is available in panel heights of 42, 54, 68 and 84 inches and in widths from 12 to 66 inches (in 6-inch increments).
For more facts request No. 118 on reply card.

DYNAGAGE: A new miniature dynagage has been developed for portable use as well as multiple rack mounted installations. The Dynagage, used with a complete new line of transducers, measures sound levels from 50 decibels to pressures of 100,000 psig over the frequency range from 0 to 15,000 cps. Water cooled transducers can be used over the temperature range from -300°F. to 6,000°F. The Gage has been made very small and lightweight with no sacrifice in performance.
For more facts request No. 119 on reply card.

CHEMICAL GOGGLE: The introduction of a new safety goggle for protection against splash, spray and impact exposures has been announced. The new goggle is recommended for use in the chemical industry and where humid conditions prevail. The goggle is indirectly ventilated—no vents in frame or holes in lens for splash-resistant safety. The goggle frame is molded from clear vinylite plastic. Frame has been designed to fit over all personal and safety prescription glasses. One-piece lens is made of impact-resistant acetate and is said to conform with high safety and optical standards.
For more facts request No. 120 on reply card.

How to Use

AFM Prepaid Reply Card

In this issue, a postage free card is provided for your convenience in requesting descriptive and informative literature. This will be forwarded to you, without obligation. Many cost saving ideas are generated by Operating Departments that have information on products available. Purchasing Officials will find this type of information invaluable. Just fill in name, address, circle number required and mail. Descriptions sent to AFM direct from the supplier.

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NEW FORGED NUTS: Up to 72 percent of the weight of locknuts used for structural skin and panel assemblies in aircraft and military electronics equipment can be saved with a new featherweight locknut developed by Standard Pressed Steel Co. The new cold-forged nut is actually that much lighter in some sizes, yet just as strong, as the widely used sheet metal (NAS-679) and AN-series nuts it is designed to replace. The new featherweight was rated ultimate tensile strength of 125,000 pounds per square inch.

For more facts request No. 122 on reply card.

TRACTOR-SHOVEL: The Frank G. Hough Co. has just announced a new four-wheel-drive, rubber-tired tractor-shovel with 7,000 lbs. carry capacity. Features include more power, more traction, stronger components, greater protection against dirt and dust, more efficient torque-converter, complete power-shift transmission, power-transfer differentials, power-steering, pry-out bucket action, safety boom arms, power-boosted brakes and numerous refinements. New and more powerful gasoline and diesel engines provide from 105 to 110 h.p. Diesel engines are available in either 2 or 4 cycle types.

For more facts request No. 124 on reply card.

ULTRASONIC CLEANER: A new Narda SonBlast ultrasonic cleaner for really large-volume cleaning operations has been developed by The Narda Ultrasonic Corporation. The new Narda SonBlast features a generator with full 500 watts output, plus a fully transducerized 10-gallon tank. The generator is equipped with tank selector and load selector switches so that it can operate either one or two ultrasonic tanks alternately, or submersible transducers in tanks up to 30-gallons capacity. Alternatively, the generator will operate from six to ten Narda high-energy submersible transducers for use in any arrangement in any shape tank up to 70-gallon capacity.

For more facts request No. 126 on reply card.

SPEED CHANGER: Metron's new miniature speed changers are greatly improved in life and performance. Black anodized aluminum cases have size 11 servo-mounts. Several other types of attachable mounts are available. One type of foot mount permits the new and improved Series 8 speed changer to be substituted for the Series 6 without changing mounting dimensions. Input and output shafts run in double heavy-duty ball bearings. Counter-shafts run in special sintered iron and copper bearings that are self lubricated. Precisely hobbled, smooth-running spur

gears are 96 pitch and 20° pressure angle. For more facts request No. 128 on reply card.

TRENCHING MACHINE: A new crawler-mounted Utility trenching and loading machine in the low-price field is now being offered by the J. I. Case Company. The basic tractor develops 30 drawbar horsepower and up to 5690 lbs. pull- or push-power. Case-built backhoe and loader are operated by 1600 psi hydraulic power supplied by 19 gpm tractor-mounted pump. Model 310's rear-mounted backhoe digs 12 1/2' deep, reaches more than 16' from its pivot, swings 180°. Unit cuts more than 13' of 4'-deep trench from one position. A special feature is foot-operated swing control which reduces cycle time by leaving operator's hands free to work bucket levers while swinging.

For more facts request No. 129 on reply card.

LIGHTWEIGHT AIR CONDITIONER: A new, lightweight, 4 1/2-ton capacity, vapor cycle air conditioning package for missile ground support systems—featuring a six inch compressor—has been developed for the United States Army Corps of Engineers by Stratos Division of Fairchild Engine and Airplane Corporation. Utilizing the small, rotary, positive-displacement compressor, which weighs only 10 1/2 pounds, and aircraft type aluminum plate and fin construction condenser and evaporator, Stratos cut the size and weight of its unit to less than half that of comparable ground support air conditioning packages. Designated the VEA4-3, the air conditioner weighs but 350 pounds, and is 40" long, 24" wide and 51" high. Stratos recently delivered the first unit to the Army's Research and Development Laboratories at Ft. Belvoir, Va.

For more facts request No. 131 on reply card.

NEW CATALOG: A new 14-page catalog (MS-1289) pointing up features of the HD-16 diesel crawler tractor is now available from Allis-Chalmers Mfg. Co. Illustrations and text, highlighting HD-16 features, include a large cutaway view of both gear-transmission and torque-converter models, also lists matched equipment available for this tractor.

For more facts request No. 136 on reply card.

Scientific

ENGINEERING DATA SHEET: A new 8 1/2 x 11 illustrated 2-color engineering data sheet describing properties and applications of Microbraz 50, new nickel-base brazing alloy for high-temperature service, is now available from Stainless Processing

Division of Wall Colmonoy Corp. The new data sheet describes the available forms and nominal composition of Microbraz 50. It itemizes the metallurgical properties and engineering properties. Descriptions of typical applications and brazing technique recommendations are also included.

For more facts request No. 111 on reply card.

WATER RAM ACCESSORY: A special oversize molded rubber cone, 6 1/2" in diameter, is now available for use with the Hydraulic Water Ram, a plumbing maintenance tool which uses hydrostatic impact to clear clogged drains and sewer lines. This large cone is used in place of the smaller standard cone with which the Hydraulic Water Ram has been equipped in the past. The large cone is for use with toilet bowls which have an unusually large diameter.

The manufacturer, Hydraulic Manufacturing Company, stresses that this oversize cone is an additional accessory, and does not replace the smaller standard cone nor the five tapered plugs which are now furnished as standard equipment.

For more facts request No. 112 on reply card.

MERCURY SWITCH: This switch weighs only 1.8 grams with leads attached and has been introduced by Micro Switch, a division of Minneapolis-Honeywell. The tiny switch, which is claimed to offer sensitive, trouble-free operation, is designed for use in computers, scales, electronic organs and other devices where a minimum of operating energy is available and space is limited. Contact arrangement is single-pole single-throw. The switch is electrically rated for a resistive load of 1 amp., 30 vol ac or dc, .5 amp., 110 vac or .75 amp., 110 vdc. On inductive loads it is rated at .75 amp., 30 volts ac or dc with inrush at 2 1/2 times full load.

For more facts request No. 115 on reply card.

CATHODE RAY TUBES: A series of 5-inch special purpose cathode ray tubes designed for use in a wide variety of industrial, commercial, and military oscilloscope applications have been announced by Sylvania Electric Products, Inc. All of the tubes feature a flat face, electrostatic focus and deflection, high deflection sensitivity, close tolerances, and low pattern distortion.

For more facts request No. 116 on reply card.

PRISMATIC TELESCOPE: Sentry, a compact and powerful 50mm prismatic telescope, is the newest addition to D. P. Bushnell & Co.'s family of optics.

The SENTRY weighs but 24 oz., and is 13 inches long. Sentry features fully coated high resolution optics which will separate the closest target patterns or scenic detail fast and accurately. The objective lens is a superb air-spaced achromat of 50mm clear aperture shielded by a retractable sunshade. Heavy duty prism housing and precision fittings assure dependable performance under abuse or adverse weather. A built-in tripod boss provides easy adaptation to any standard camera tripod.

For more facts request No. 123 on reply card.

LIGHTWEIGHT MICRODIAL: The Borg Equipment Division of The George W. Borg Corporation has developed a new, lightweight, 3 digit, direct-reading Microdial for use where weight is a factor. Three rows of knurled bands on the aluminum control knob make the new dial exceptionally easy to set especially under forced-fast-setting conditions. The dial is available in a 3-digit, 10-turn version only.

For more facts request No. 125 on reply card.

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